

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

AMENDMENTS TO THE CLAIMS

1-8. (Cancelled)

9. (Currently amended) A method of treatment of for the curative, palliative and prophylactic treatment of rumen acidosis, and related conditions, which comprises administration of an effective amount of an effective inhibitor of a bacterial α -amylase and/or α -glucosidase to a ruminant.

10. (Original) A method according to claim 9 for the treatment of chronic acidosis.

11. (Original) A method according to claim 9 for the treatment of acute acidosis.

12. (Currently amended) A method according to any one of claims 9, 10, 11, 20, 21, 26 or 30 or 11 where the inhibitor of bacterial α -amylase and/or α -glucosidase has an IC_{50} of $10^{-3}M$ or less.

13. (Cancelled) A method according to any one of claims 1, 10, 11 or 12 wherein the inhibitor is selected from one of the inhibitors mentioned here in relation to preferred inhibitors.

14. (Cancelled) A method according to claim 13 wherein the inhibitor is selected from acarbose and the higher homologues thereof, Trestatin A, Trestatin C, the compound of Fraction 21 of Example 7 herein, Example 8 herein, and the fermentation broth products mentioned herein.

15. (Currently amended) A method according to claim 14 30, wherein the inhibitor is selected from acarbose and the higher homologues thereof, Trestatin A, Trestatin B, Trestatin C, the compound of Fraction 21, of Example 7 herein and the compound of Example 8 herein.

16. (Currently amended) A method according to claim 15 wherein the inhibitor is selected from acarbose and Trestatin C.

17-19. (Cancelled).

20. (Presently amended) A method process for improving ruminant milk quality and/or quantity which comprises treatment of a ruminant with an effective amount of an inhibitor of bacterial α -amylase and/or α -glucosidase.

21. (Presently amended) A method process according to Claim 20 wherein the inhibitor is as defined in any one of Claims 30 4, 5, 6, 7 or 8.

22-25. (Cancelled).

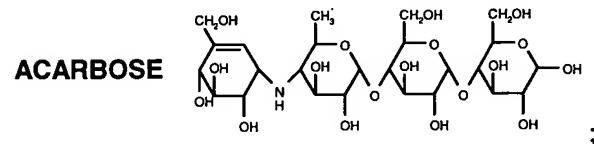
26. (New) The method according to Claim 21 wherein the inhibitor is acarbose.

27. (New) The method according to Claims 21 and 26 wherein the milk quality improves by an increase in fat content of the milk.

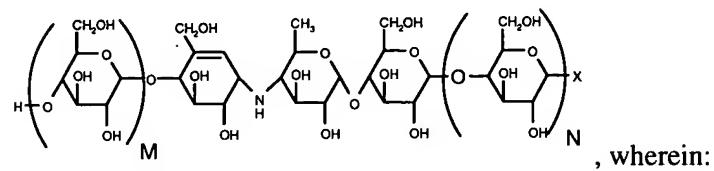
28. (New) The method according to Claims 9, 15 and 16, wherein the related condition is laminitis, chronic laminitis, intermittent diarrhea, poor appetite and cyclic feed intake, a high herd cull rate for poorly defined health problems, poor body condition, abscesses without obvious causes, sole ulceration, white line lesions, sole hemorrhages, misshapen hooves, lameness, liver abscesses, depressed immune function, respiratory diseases, reduced fertility rates, ruminal stasis or impaired nutrient absorption.

29. (New) The method according to Claims 9, 15 and 16, wherein the related condition is reduced weight gain in cattle, reduced feed conversion efficiency in cattle or decreased milk yield and reduced milk quality in cattle.

30. (New) The method according to Claim 9 wherein the inhibitor is selected from:



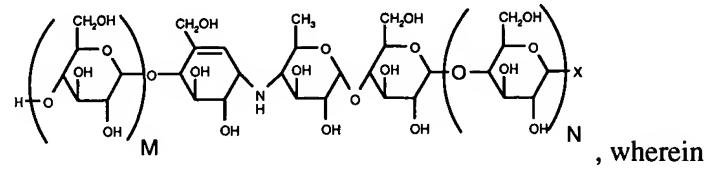
a compound having the formula of,



, wherein:

X is OH, M is 0-1 and N is 0-6;

a compound having the formula of,



, wherein

M is 0-8, and the sum of M + N is 0-7;

X is OR, SH, SR, NH₂, NHR, or NRR¹, wherein

R is alkyl, alkenyl, cycloalkyl, aralkyl, aryl or heterocyclyl, where the alkyl moiety, R, is optionally substituted with 1 to 5, substituents selected from hydroxyl, or alkoxy, methoxy, ethoxy, amino, monoalkylamino, dialkylamino, monomethylamino, monoethylamino, dimethylamino,

PATENT/Docket No. PC10922C

Appl. No. 10/774,139

Filing Date: February 6, 2004

Reply to Office action of January 27, 2005

diethylamino; mercapto, alkylthio, methylthio, ethylthio, halogen, alkylcarbonyl, carboxyl, nitro, cyano, an aldehyde group or a sulphonic acid group; where the alkenyl moiety, R, is straight-chain or branched alkenyl with 2 to 6 carbon atoms, optionally substituted with substituents selected from hydroxyl, alkoxy, mercapto, alkylthio, halogen or nitro; where cycloalkyl, may be optionally substituted with substituents selected from hydroxyl, or alkoxy, methoxy, ethoxy, amino, monoalkylamino, dialkylamino, monomethylamino, monoethylamino, dimethylamino, diethylamino; mercapto, alkylthio, methylthio, ethylthio, halogen, alkylcarbonyl, carboxyl, nitro, cyano, an aldehyde group or a sulphonic acid group; where the aryl moiety, R, is a monocyclic or bicyclic aromatic radical with 6 to 10 carbon atoms in the aryl part, optionally substituted with 1 to 3 substituents selected from alkyl, alkenyl, hydroxyl, alkoxy, amino, monoalkylamino, dialkylamino, mercapto, alkylthio, carboxyl, carbalkoxy, a sulphonic acid group, alkylsulphonyl, arylsulphonyl, phenylsulphonyl, aminosulphonyl, alkylaminosulphonyl, dialkylaminosulphonyl, methylaminosulphonyl, dimethylaminosulphonyl, nitro, cyano, an aldehyde group, alkylcarbonylamino, alkylcarbonyl, benzoyl, benzylcarbonyl, phenethylcarbonyl; where the aralkyl moiety, R, has 6 to 10, carbon atoms in the aryl part, such as phenyl, biphenyl or naphthyl, and 1 to 4 carbon atoms in the alkyl part, such as benzyl or phenylethyl; wherein the heterocyclic moiety, R, is selected from a hetero-paraffinic, heteroaromatic or hetero-olefinic 5-membered or 6-membered ring, with 1 to 3 hetero-atoms selected from oxygen, sulphur or nitrogen, the ring being optionally substituted with hydroxyl, amino, C₁–C₄-alkyl groups, benzene nuclei or a 6-membered, fuseable heterocyclic rings, selected from furan, pyran, pyrrolidine, piperidine, pyrazole, imidazole, pyrimidine, pyridazine, pyrazine, triazine, pyrrole, pyridine, benzimidazole, quinoline, isoquinoline or purine;

wherein R¹ of NRR¹, is alkyl, cycloalkyl, aralkyl, or aryl, where the alkyl moiety, R¹, is a straight-chain or branched alkyl radical having 1-6 carbon atoms; wherein the cycloalkyl, aralkyl or aryl radical moieties are selected from cyclopentyl, cyclohexyl, benzyl or phenyl radical, wherein the R¹ moieties are optionally substituted by alkoxy with 1 to 4 carbon atoms, amino, C₁–C₄ monoalkylamino, C₁–C₄-dialkylamino, nitro, cyano, hydroxyl, mercapto, C₁–C₄-thioalkyl, carboxyl or sulphonic acid group;

wherein R and R¹ and the nitrogen atom to which they are bonded, may optionally form a saturated or unsaturated heterocyclic ring, the ring optionally containing, 1 to 3 heteroatoms selected from oxygen, sulphur or nitrogen; hetero groups selected from SO₂ group or a N-alkyl group, the N-alkyl moiety selected from methyl, ethyl, n-propyl, i-propyl, n-butyl, I-butyl or t-butyl; wherein the heterocyclic ring moiety contains 5-7 ring members;

a compound of Fraction 21 (6942/99/1) with the structure,

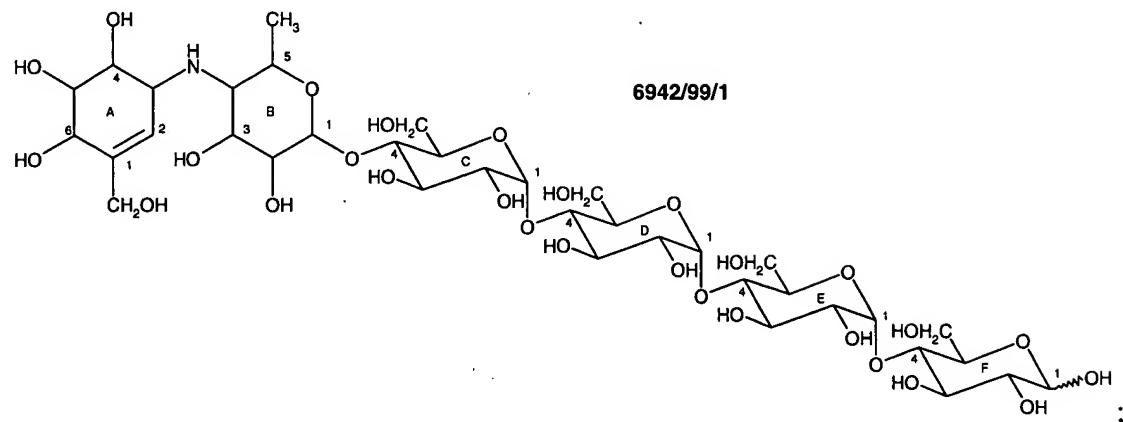
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Rev. 5/27/03

PATENT/Docket No. PC10922C

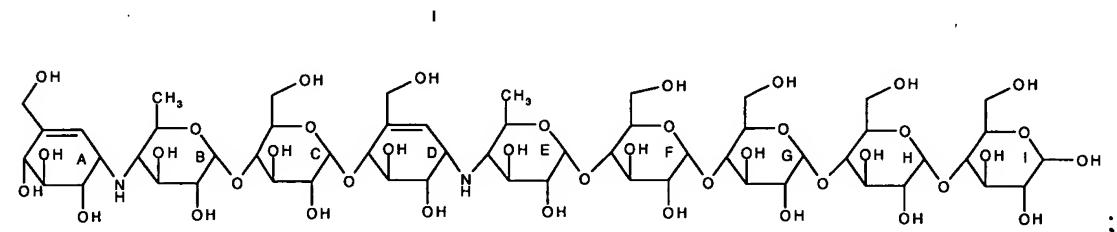
Appl. No. 10/774,139

Filing Date: February 6, 2004

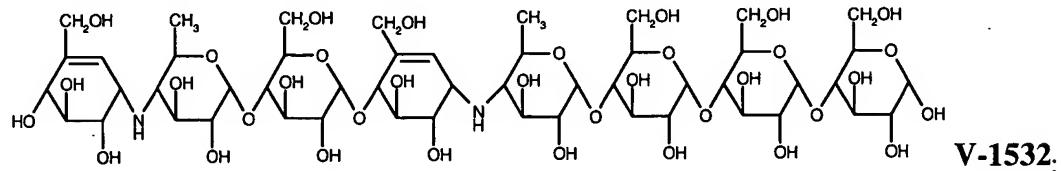
Reply to Office action of January 27, 2005



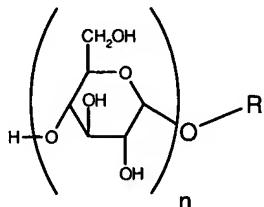
a compound, Example 8 compound with the structure,



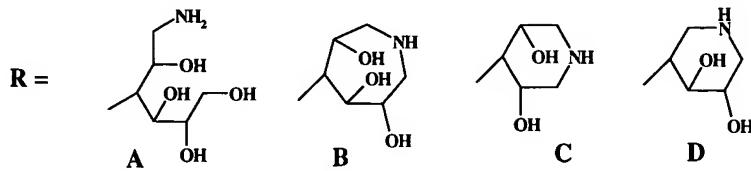
a compound, V-1532, having the structure,



a compound with the formula,



wherein,



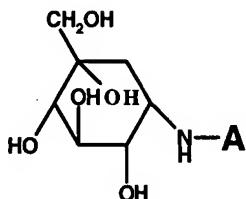
wherein n is 0-4, with the proviso that when R is D, n is 1-3;

a natural product amylase inhibitor, SA-1;

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Rev. 5/27/03

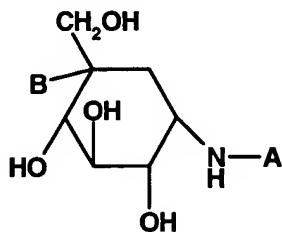
an amylase inhibitor produced by a *Streptomyces* strain DMC-72;

a valiolamine derivatives with the structure,



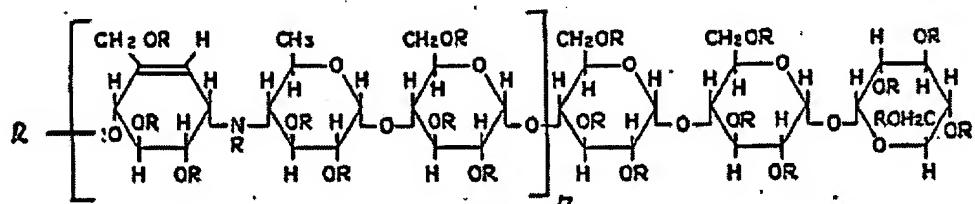
wherein A is an acyclic hydrocarbon group selected from (a) 1 to 10 carbon atoms, optionally substituted with substituents selected from hydroxy, phenoxy, thienyl, furyl, pyridyl, cyclohexyl, (b) a substituted or unsubstituted phenyl, or (c) a five- to six-membered cyclic hydrocarbon group, optionally substituted with hydroxy, hydroxymethyl, methyl, amino, or a saccharide residue;

valiolamine and validamine derivatives with the structure,



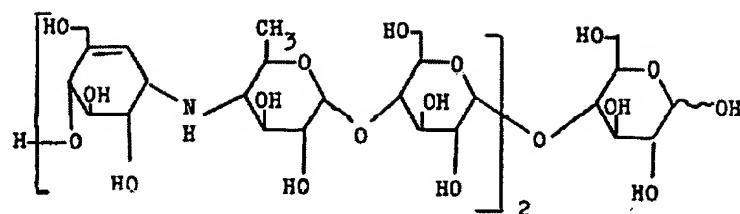
wherein A is a hydrocarbon group selected from (a) 1 to 10 carbon atoms, optionally substituted with hydroxy, phenoxy, thienyl, furyl, pyridyl, cyclohexyl, (b) a phenyl group optionally substituted; or (c) a cyclic hydrocarbon having 3-7 carbon atoms, optionally substituted with hydroxyl, and wherein B is hydrogen or hydroxyl;

sulphated trestatins,



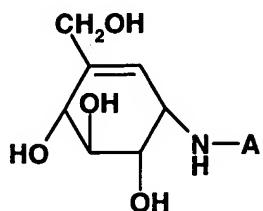
wherein n is 1-3, R is hydrogen or a residue $-\text{SO}_3\text{M}$, and M is a cation, wherein a degree of sulphation is at least 1;

pseudooligosaccharides produced by a *Streptomyces* sp., FH-1717 (DSM-3006),

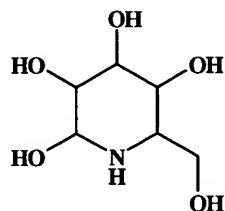


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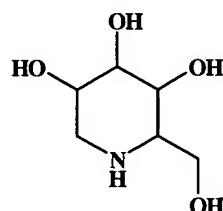
a N-substituted valienamine derivative,



wherein A is a chain hydrocarbon group selected from (1) 1 to 10 carbon atoms, optionally substituted by hydroxyl, phenoxy, thienyl, furyl, pyridyl, cyclohexyl or phenyl, the phenyl moiety being further optionally substituted by hydroxyl, lower alkoxy, lower alkyl, halogen or carboxyl or (b) a cyclic hydrocarbon group, having 3 to 7 carbon atoms optionally substituted by hydroxyl;

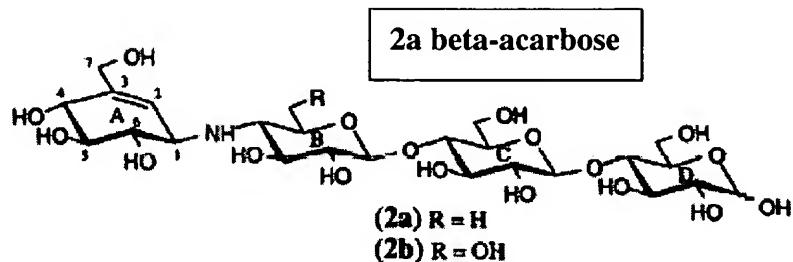


nojirimycin



1-deoxynojirimycin

a β -acarbose,



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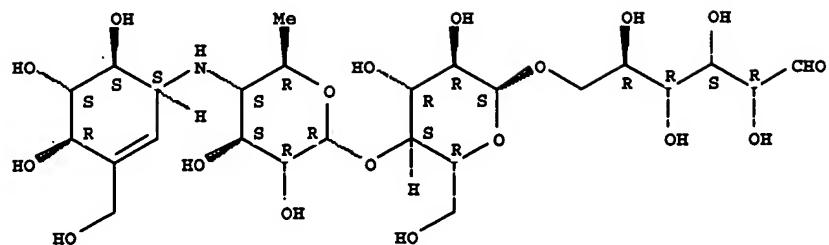
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PATENT/Docket No. PC10922C

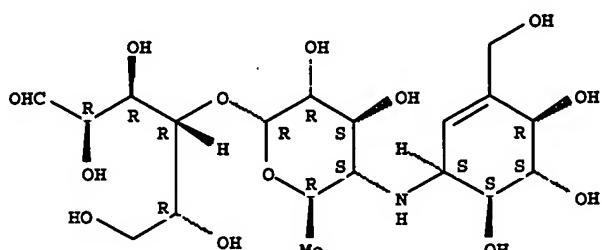
Appl. No. 10/774,139

Filing Date: February 6, 2004

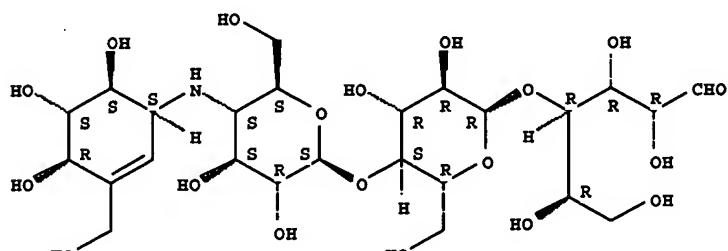
Reply to Office action of January 27, 2005



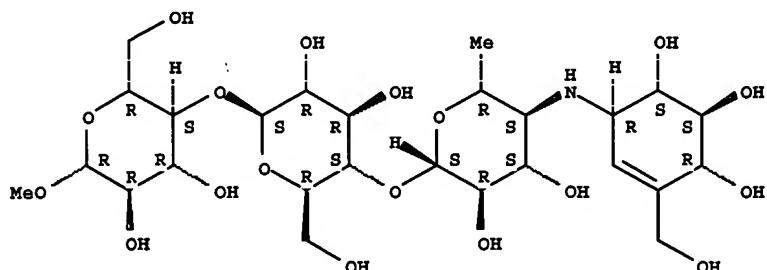
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adiposin-2,



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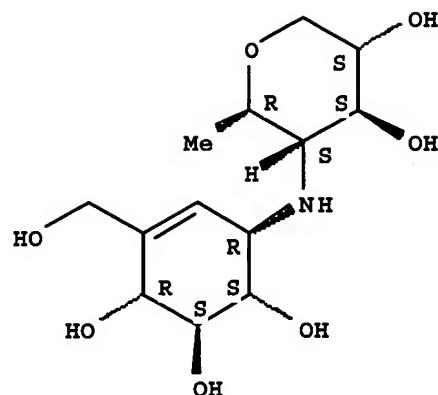
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Appl. No. 10/774,139

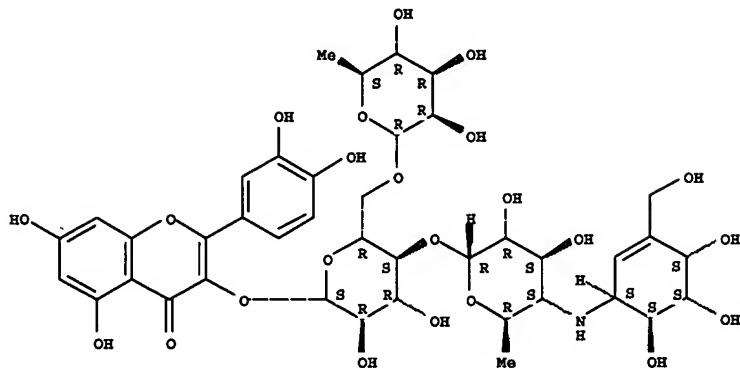
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Reply to Office action of January 27, 2005



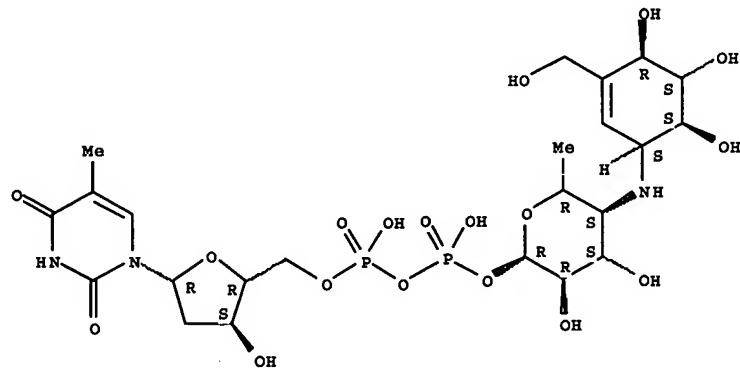
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Rev. 5/27/03

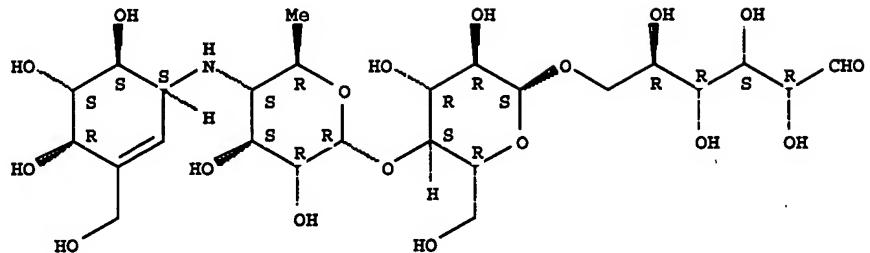
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Appl. No. 10/774,139

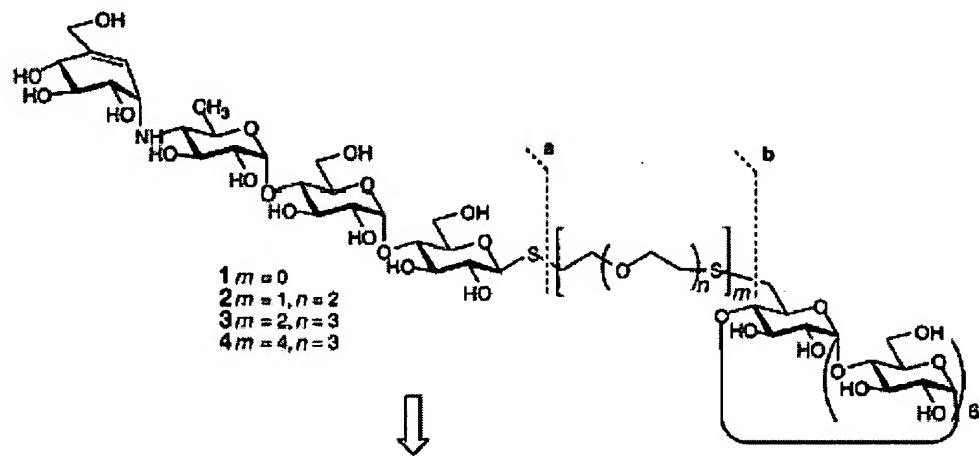
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Reply to Office action of January 27, 2005

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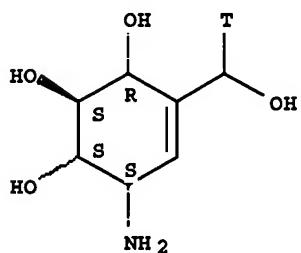


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compound 4

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FORM AMEND
Rev. 5/27/03

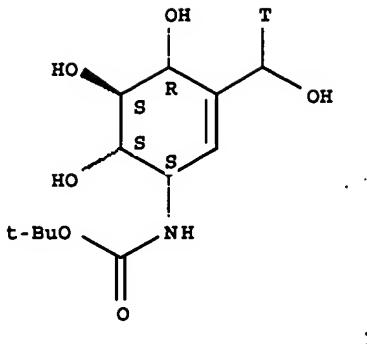
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Appl. No. 10/774,139

Filing Date: February 6, 2004

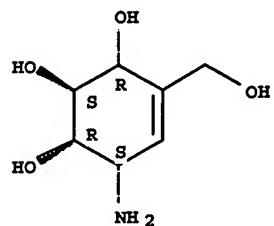
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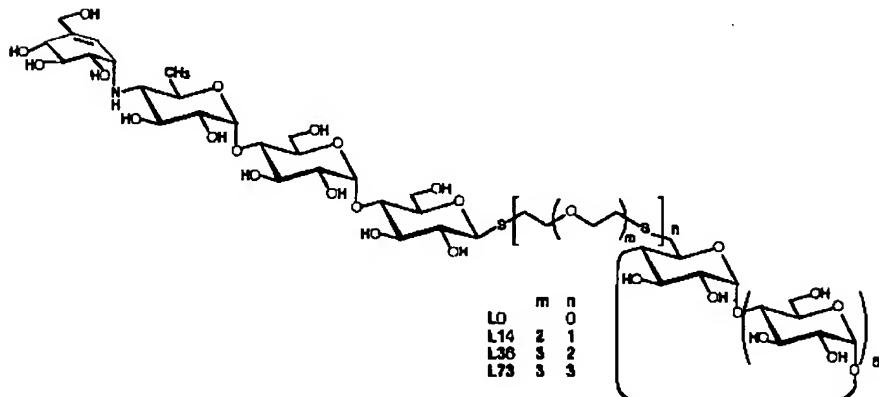
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L14 = 211247-56-2

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FORM AMEND
Rev. 5/27/03

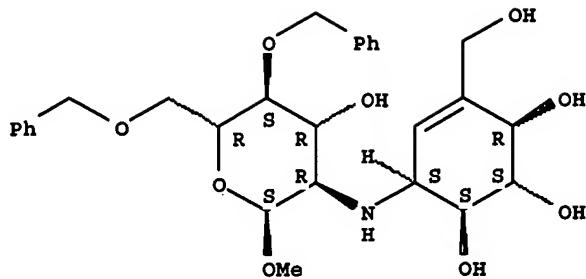
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Appl. No. 10/774,139

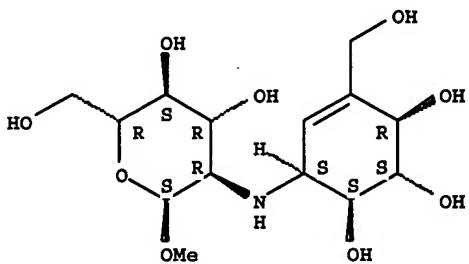
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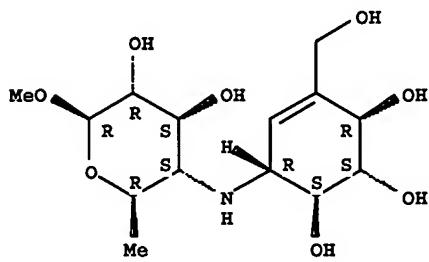
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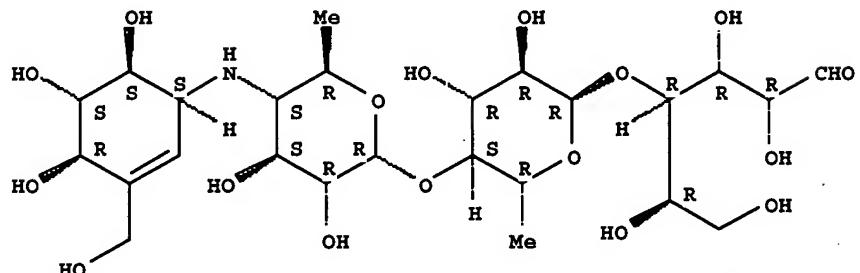
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Rev. 5/27/03

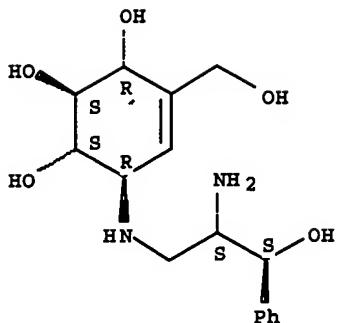
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Appl. No. 10/774,139

Filing Date: February 6, 2004

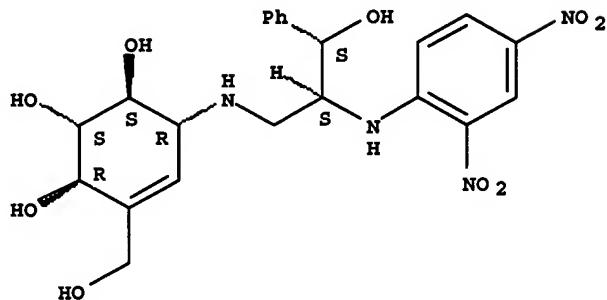
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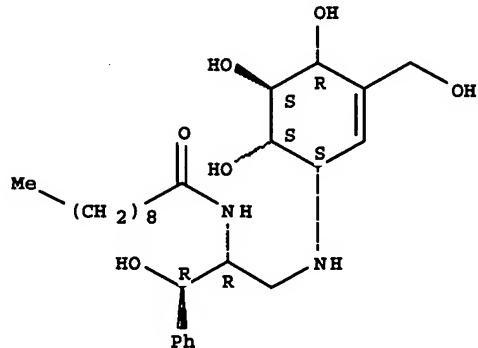
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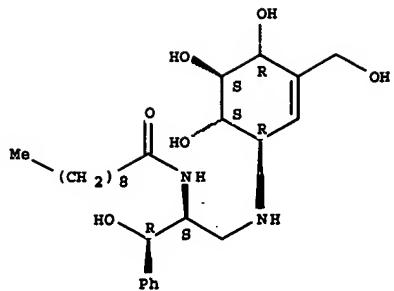
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

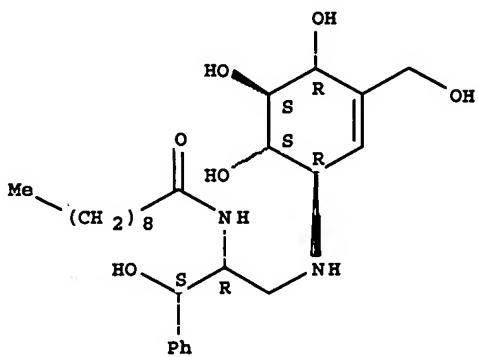
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Reply to Office action of January 27, 2005

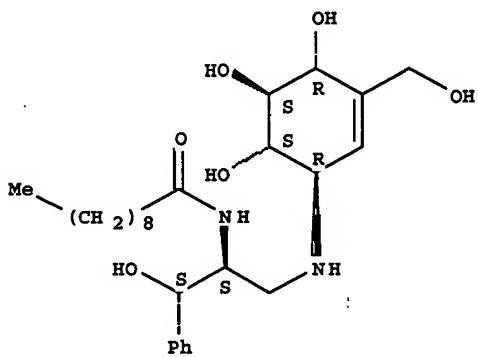
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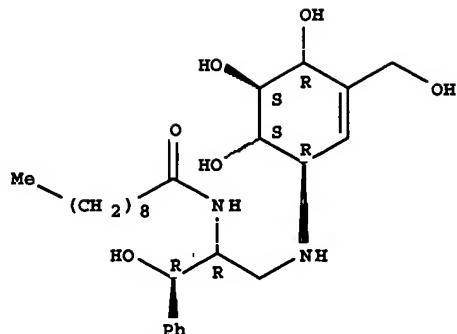
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

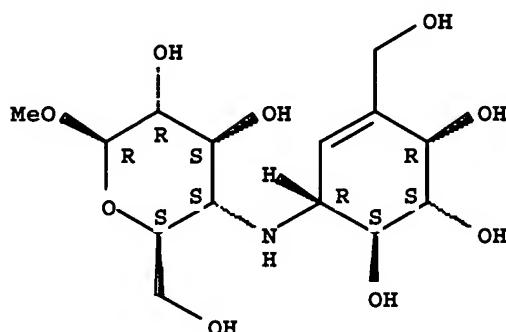
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Reply to Office action of January 27, 2005

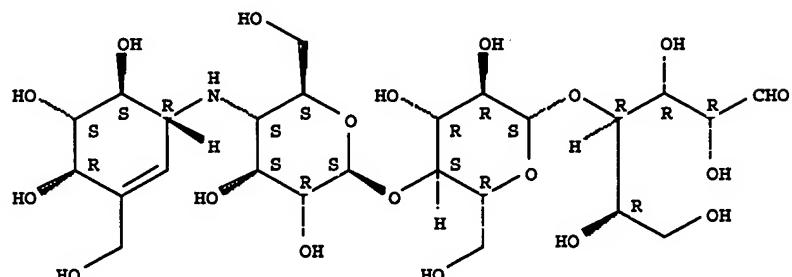
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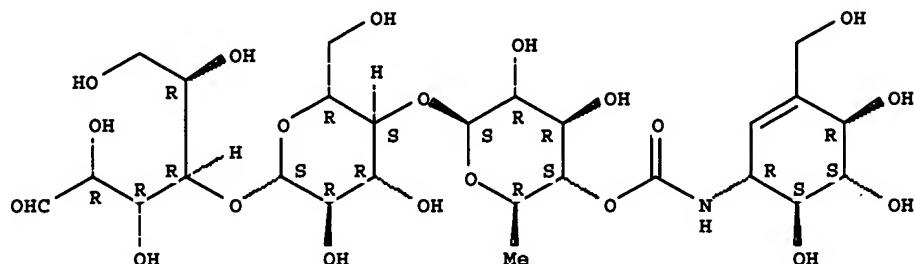
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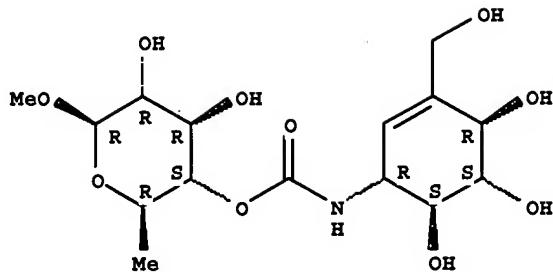
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

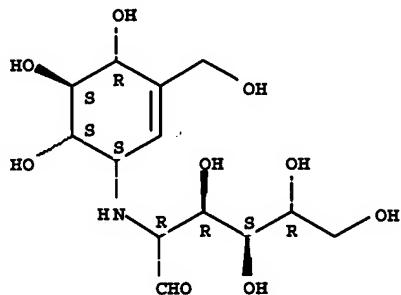
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Reply to Office action of January 27, 2005

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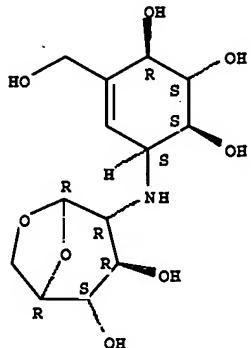


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HCl

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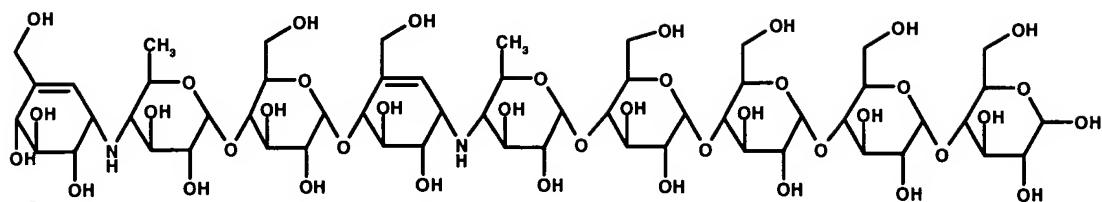
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Appl. No. 10/774,139

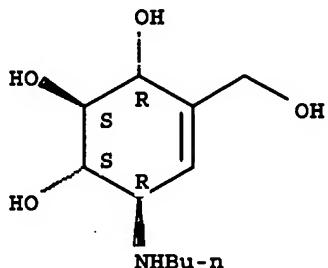
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Reply to Office action of January 27, 2005

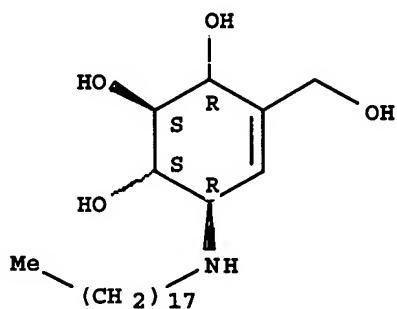
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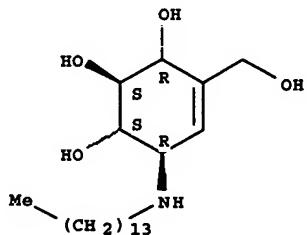
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FORM AMEND
Rev. 5/27/03

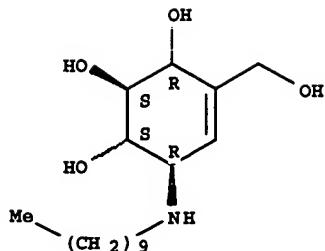
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Appl. No. 10/774,139

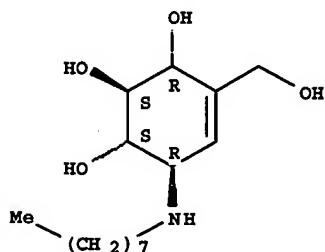
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Reply to Office action of January 27, 2005

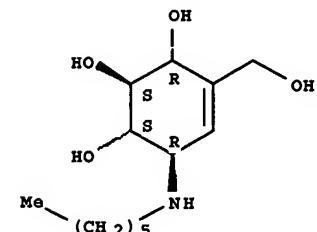
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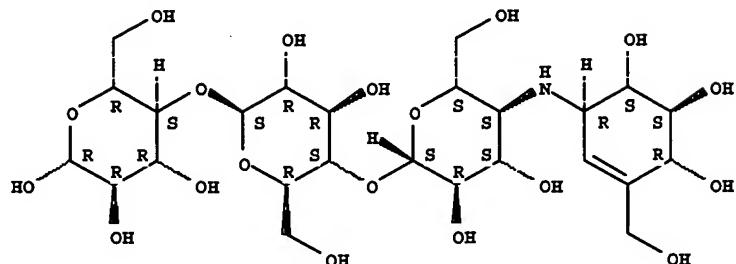
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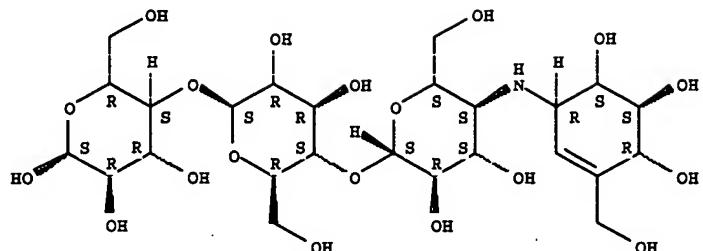
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Appl. No. 10/774,139

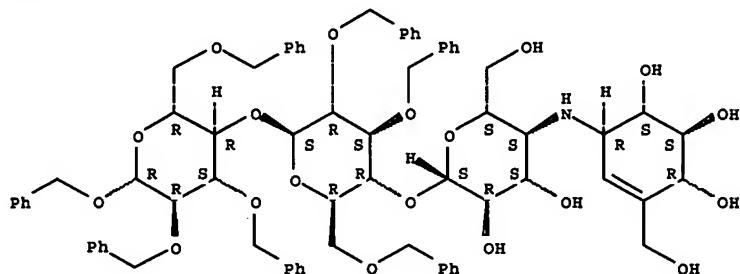
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Reply to Office action of January 27, 2005

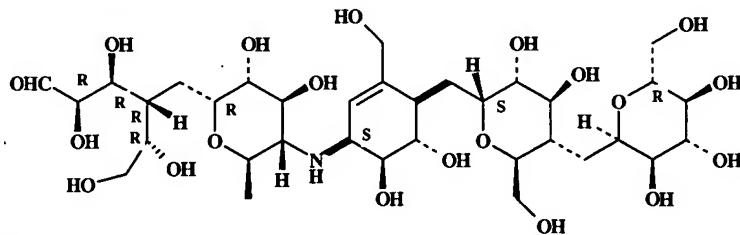
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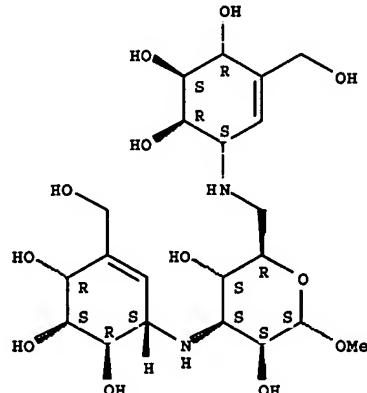
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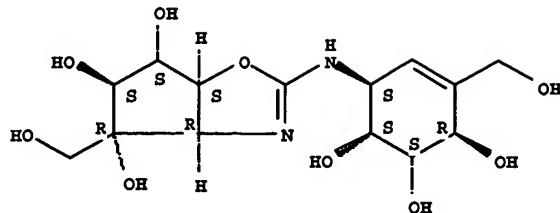
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

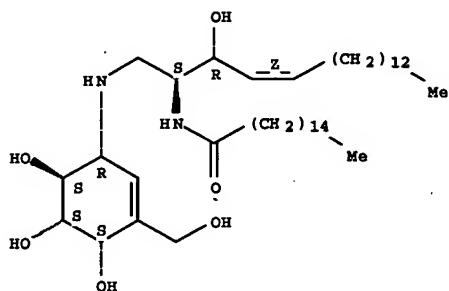
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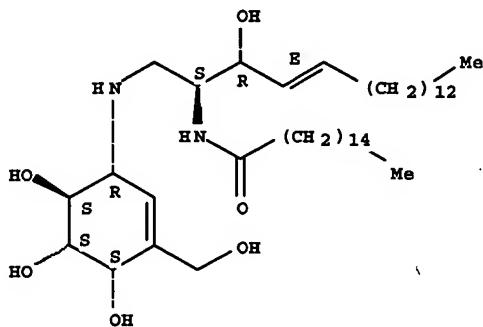
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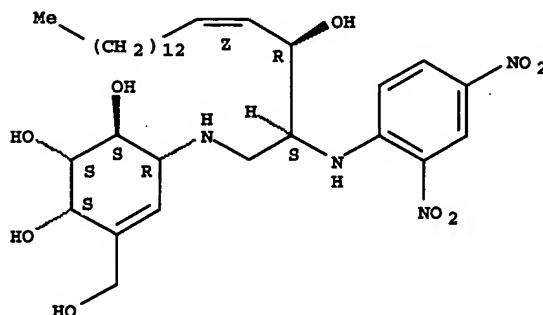
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FORM AMEND
Rev. 5/27/03

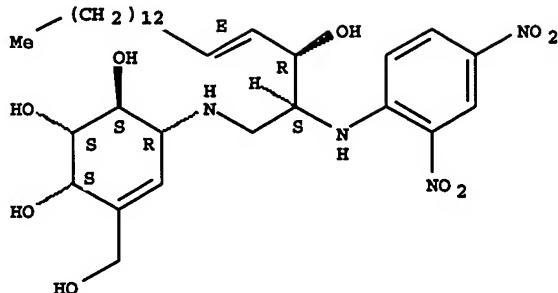
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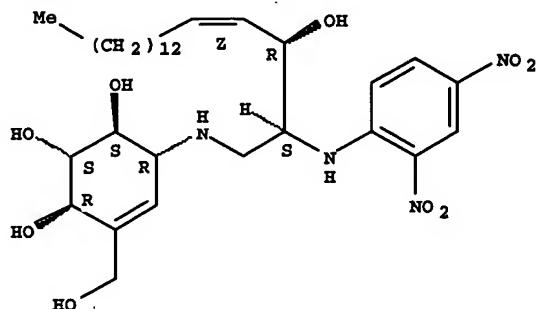
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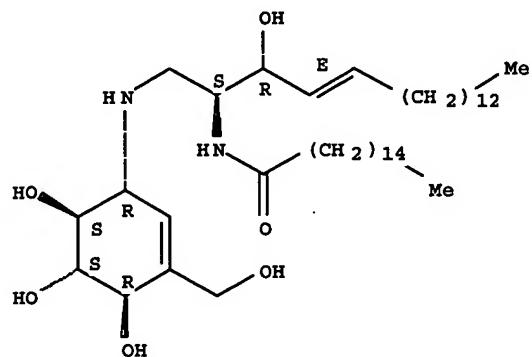
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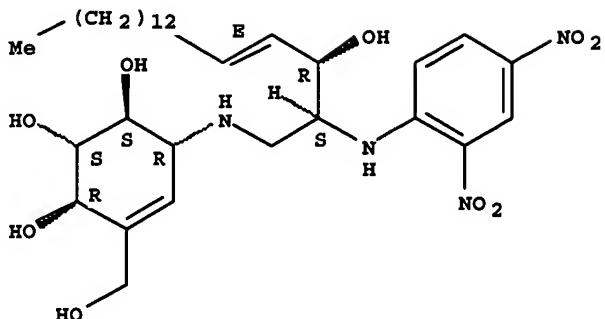
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Appl. No. 10/774,139

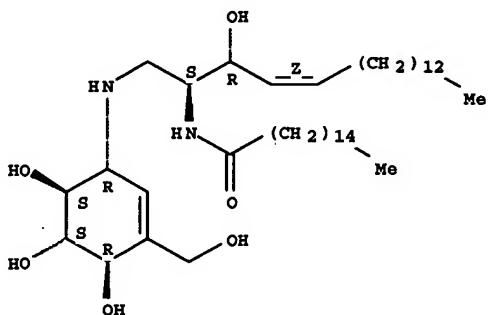
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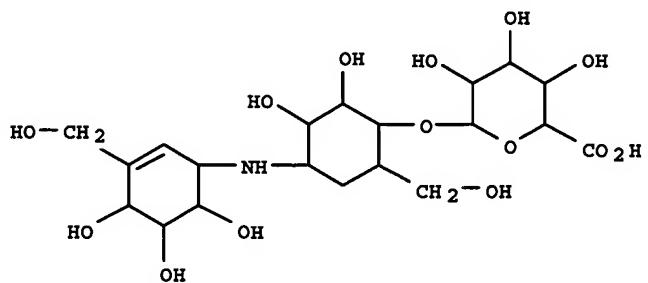
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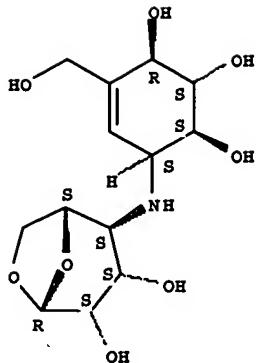
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Appl. No. 10/774,139

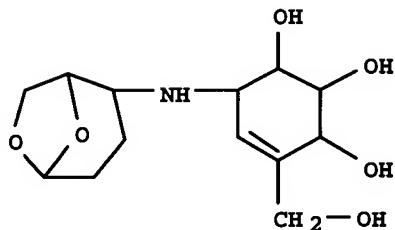
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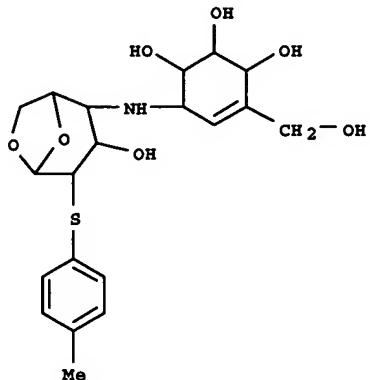
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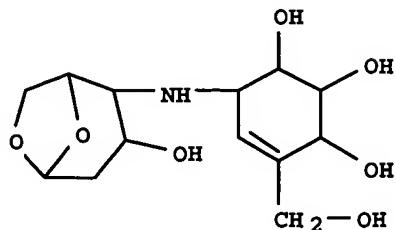
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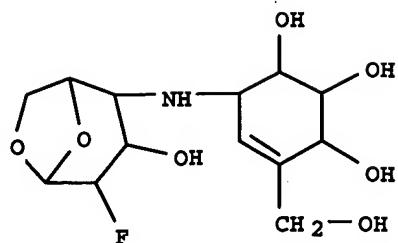
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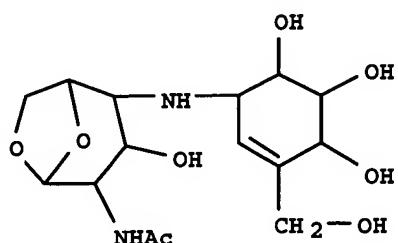
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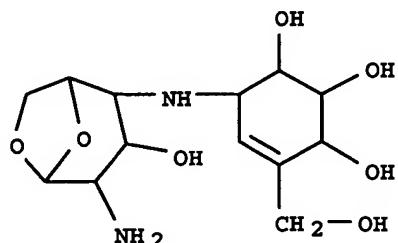
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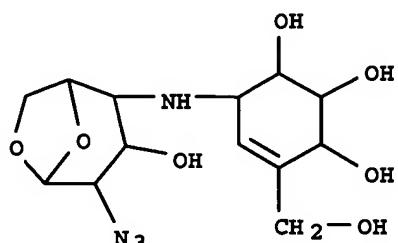
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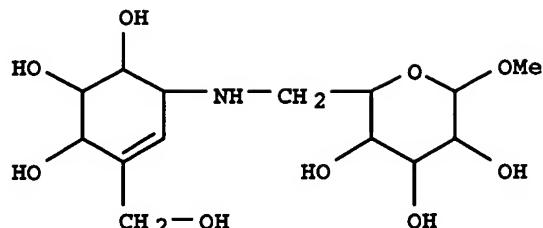
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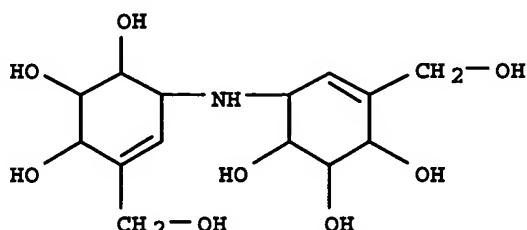
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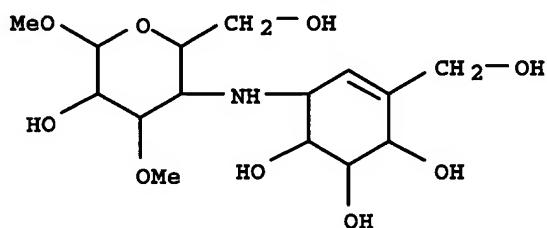
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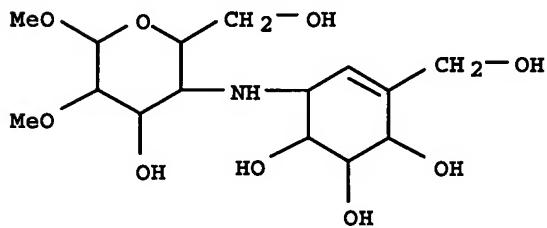
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Rev. 5/27/03

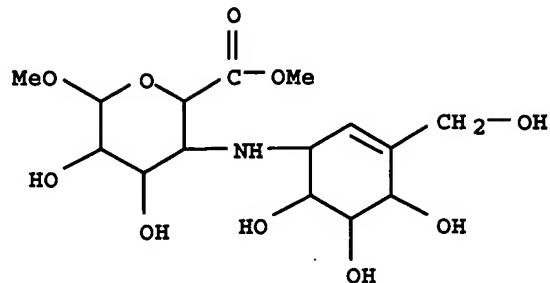
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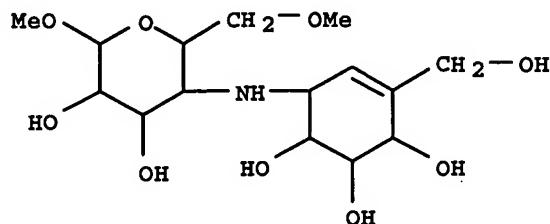
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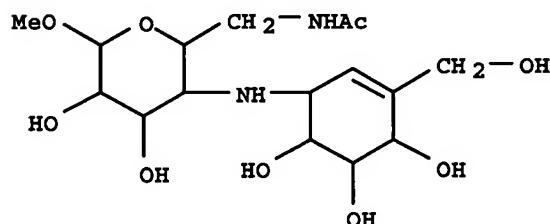
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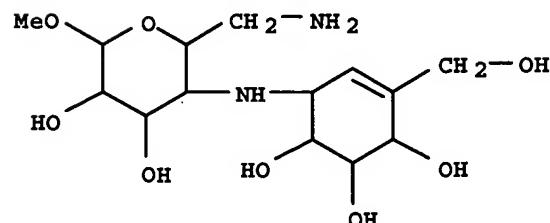
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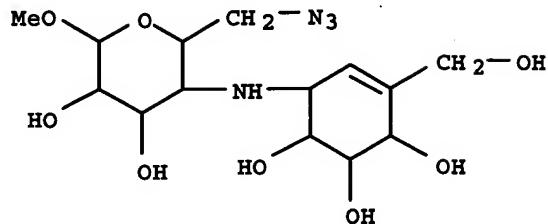
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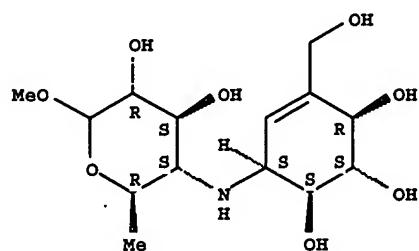
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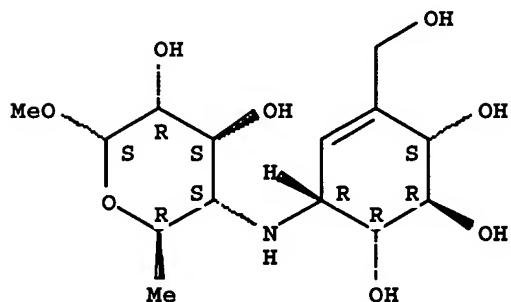
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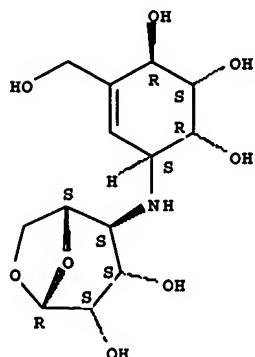
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FORM AMEND
Rev. 5/27/03

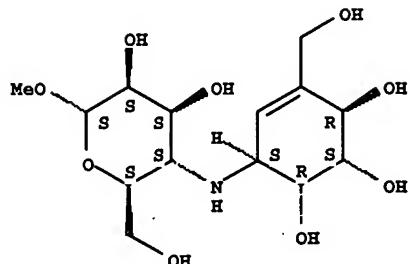
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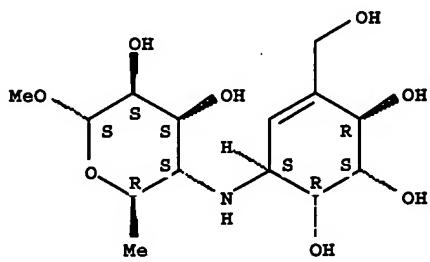
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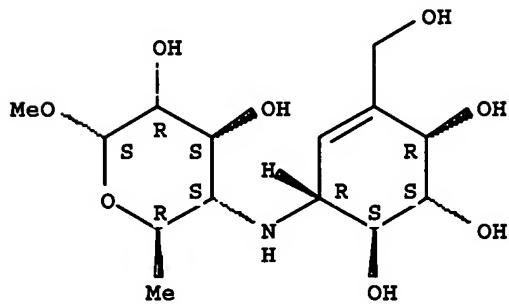
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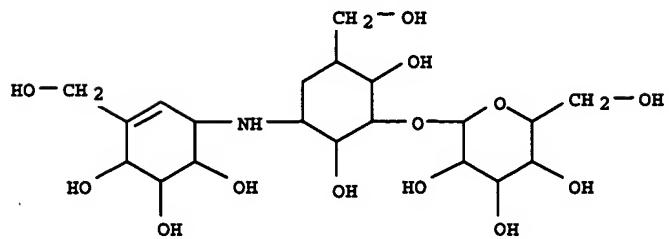
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FORM AMEND
Rev. 5/27/03

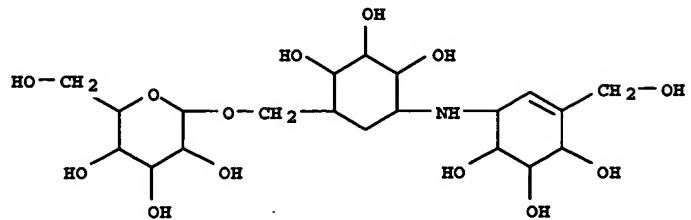
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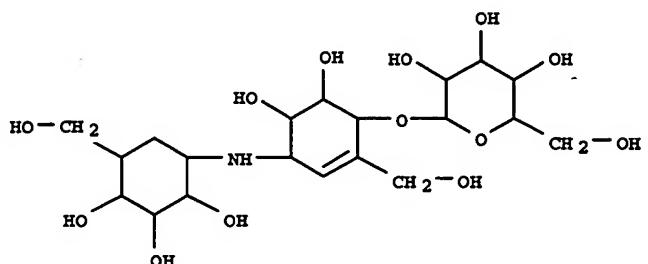
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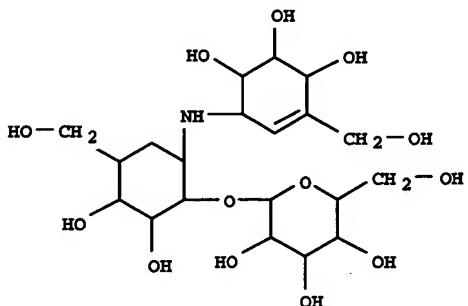
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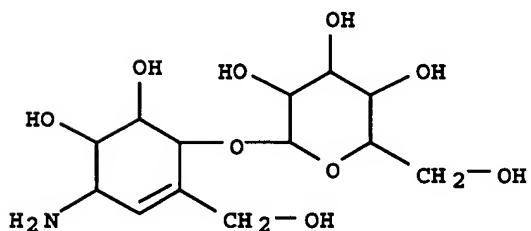
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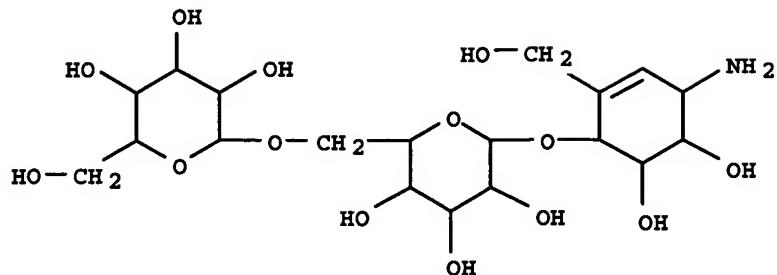
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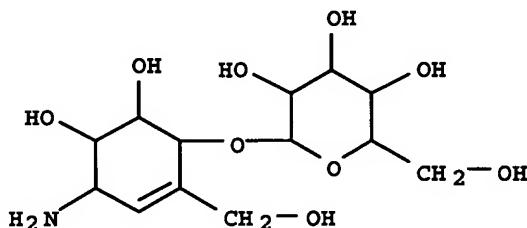
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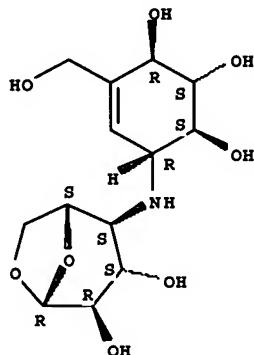
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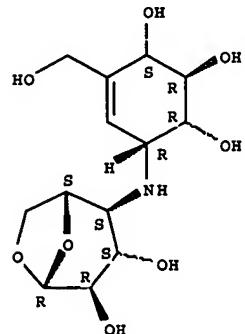
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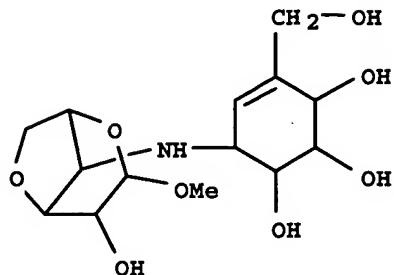
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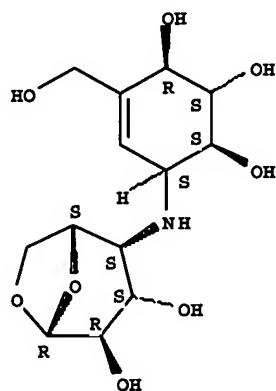
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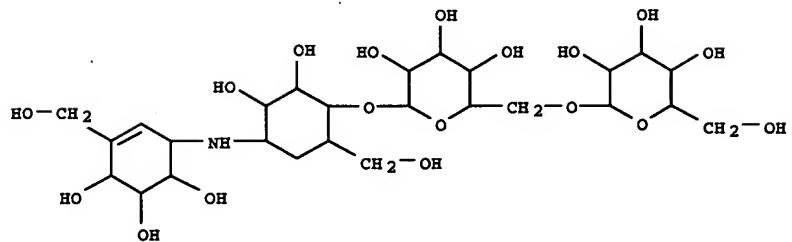
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FORM AMEND
Rev. 5/27/03

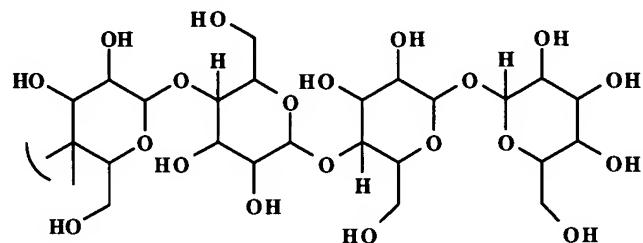
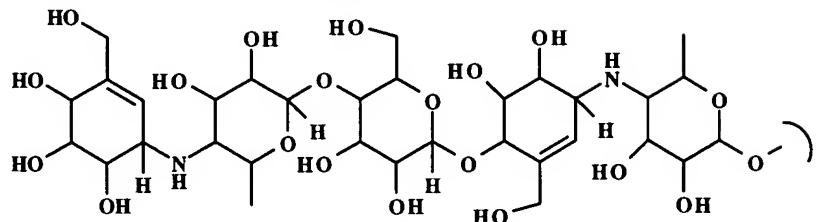
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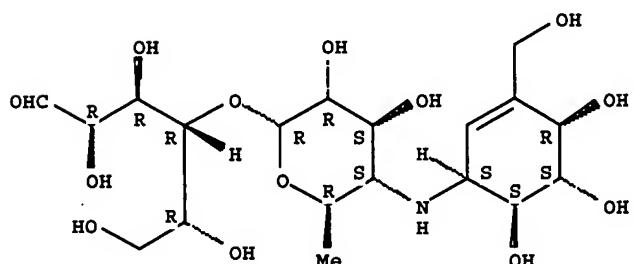
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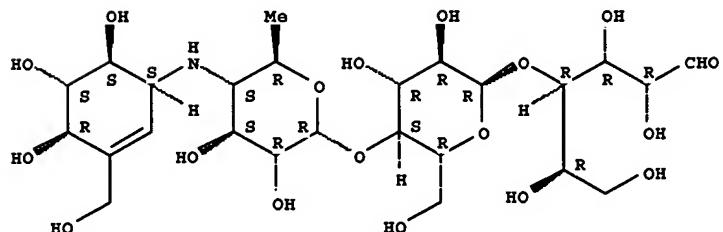


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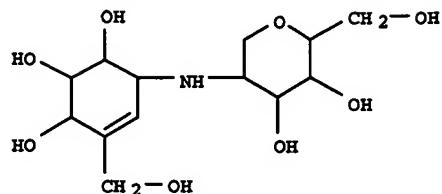
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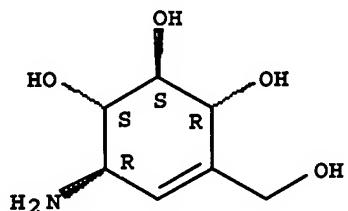
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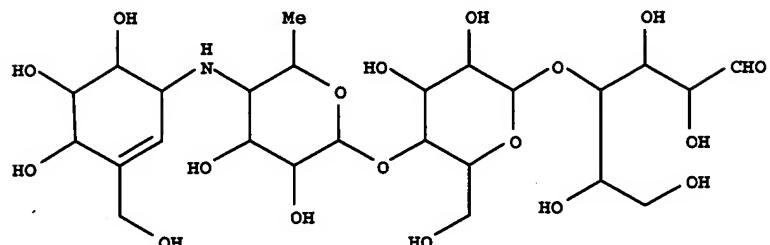
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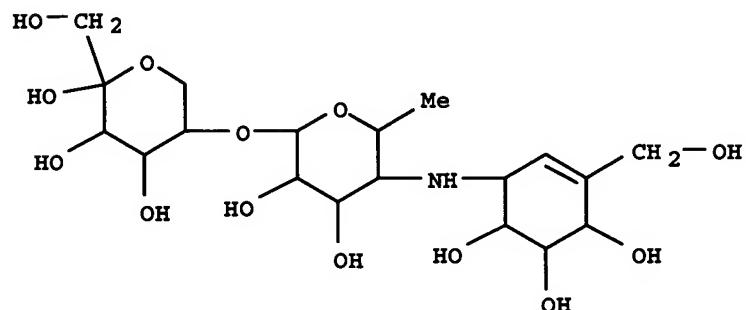
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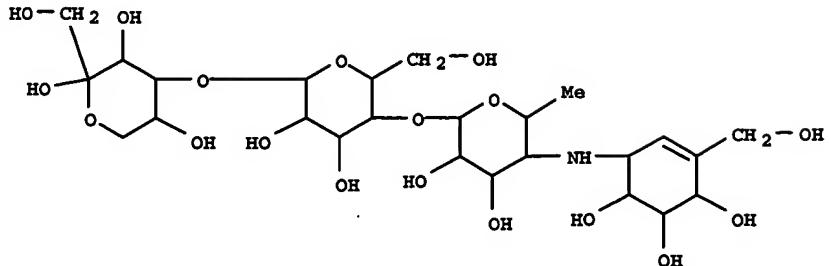
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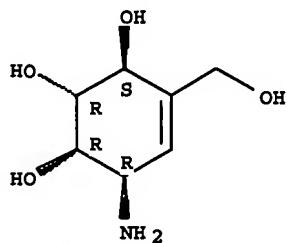
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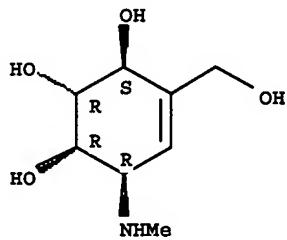
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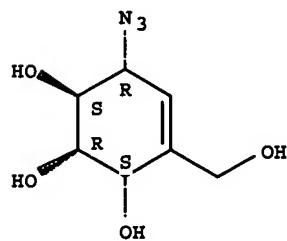
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FORM AMEND
Rev. 5/27/03

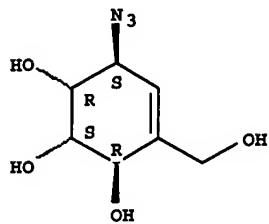
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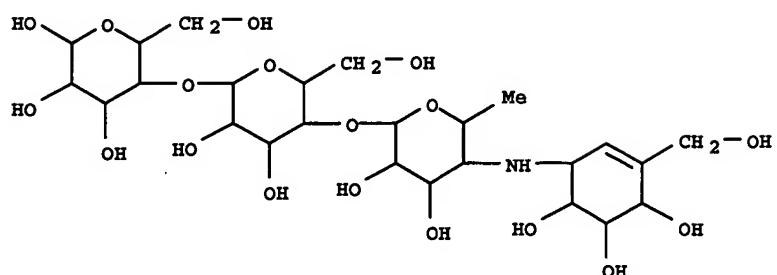
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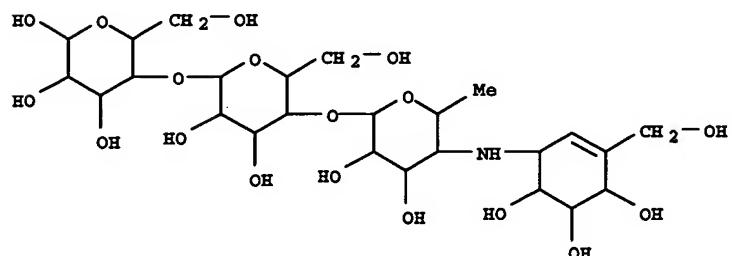
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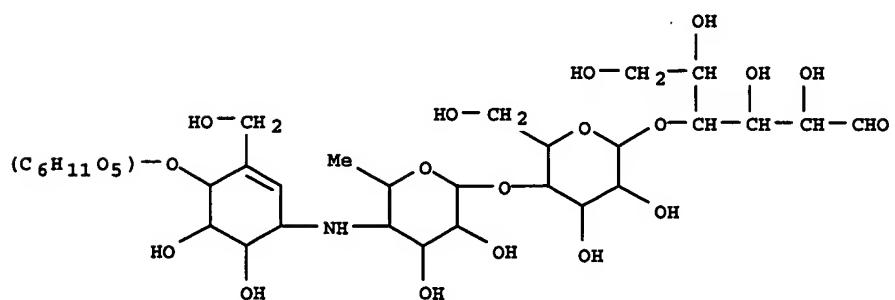
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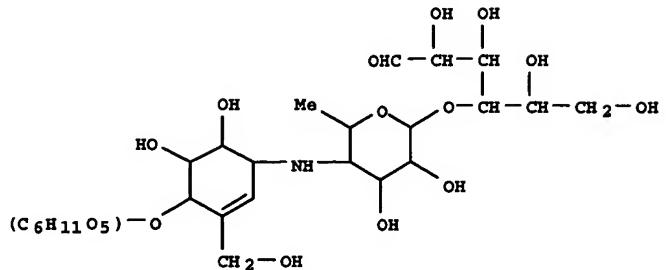
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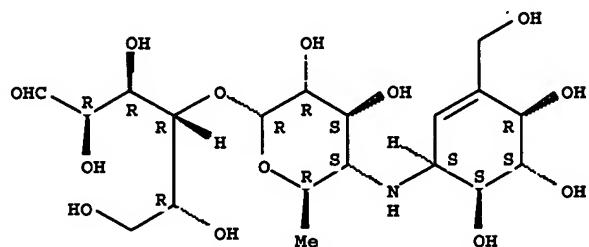
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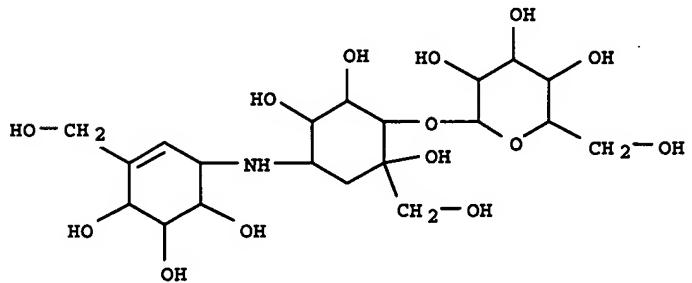
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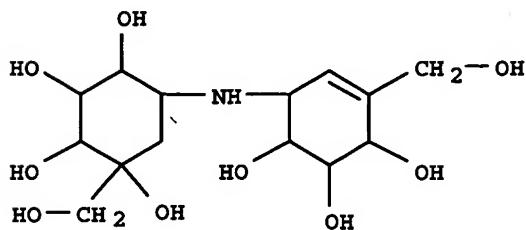
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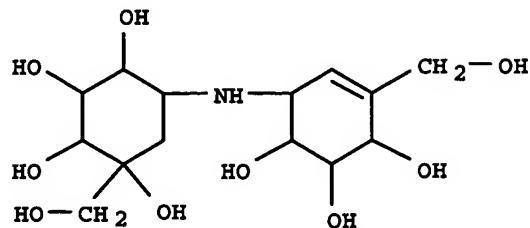
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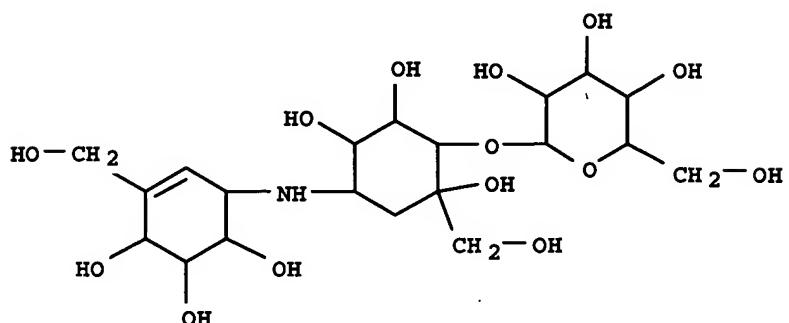
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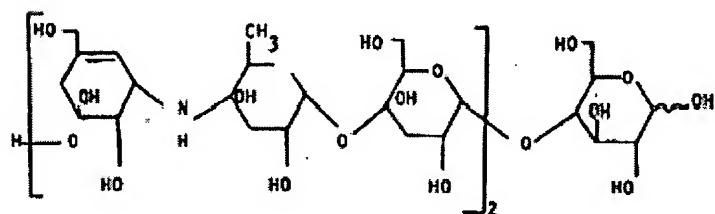
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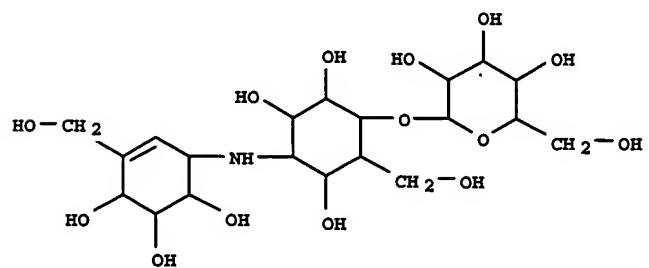
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FORM AMEND
Rev. 5/27/03

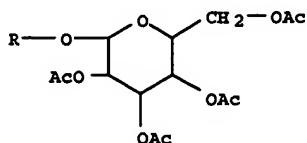
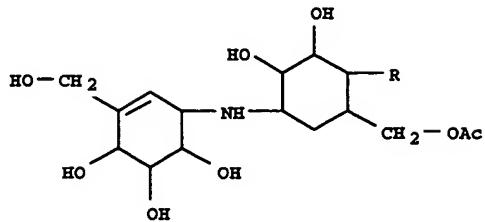
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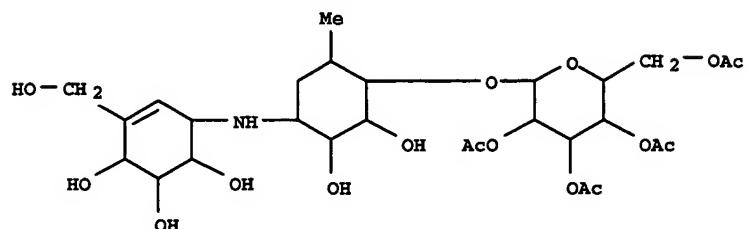
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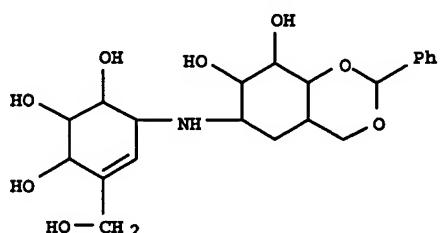
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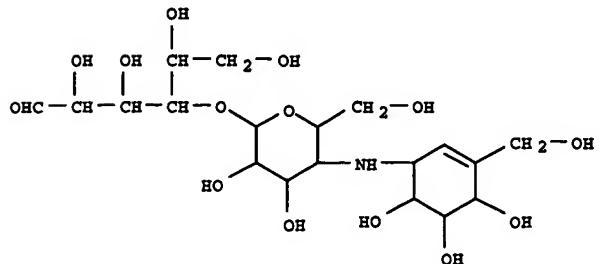
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FORM AMEND
Rev. 5/27/03

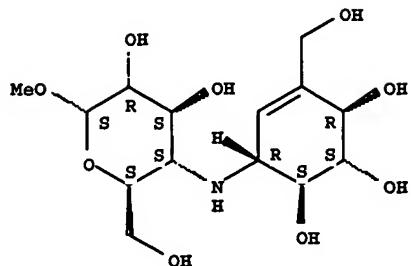
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

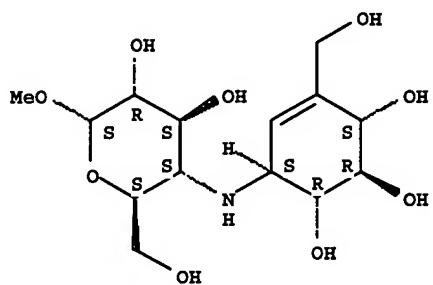
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Reply to Office action of January 27, 2005

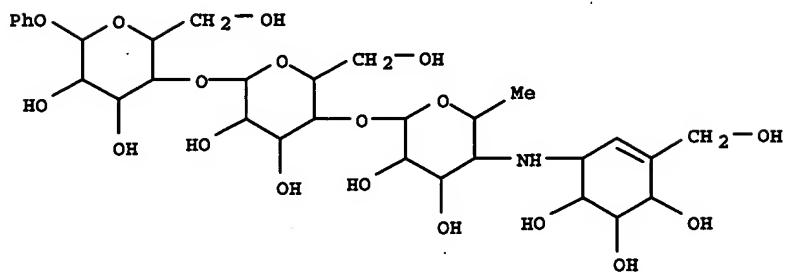
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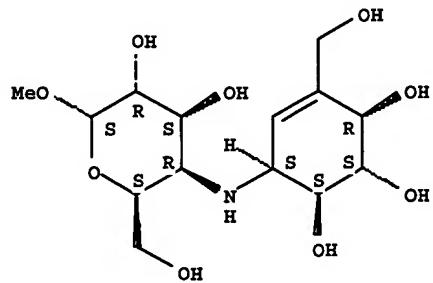
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RN-89920-25-2



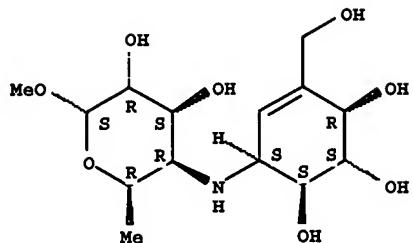
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Appl. No. 10/774,139

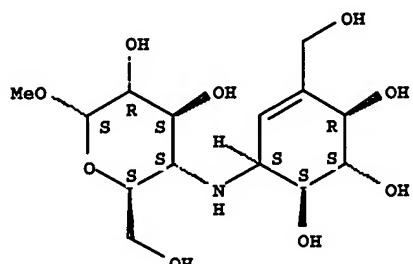
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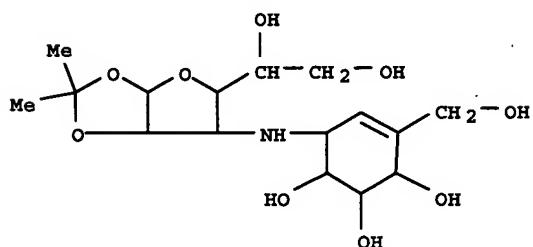
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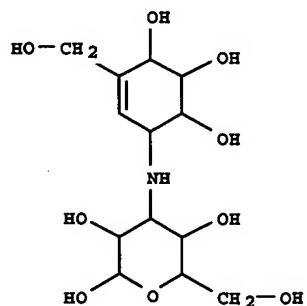
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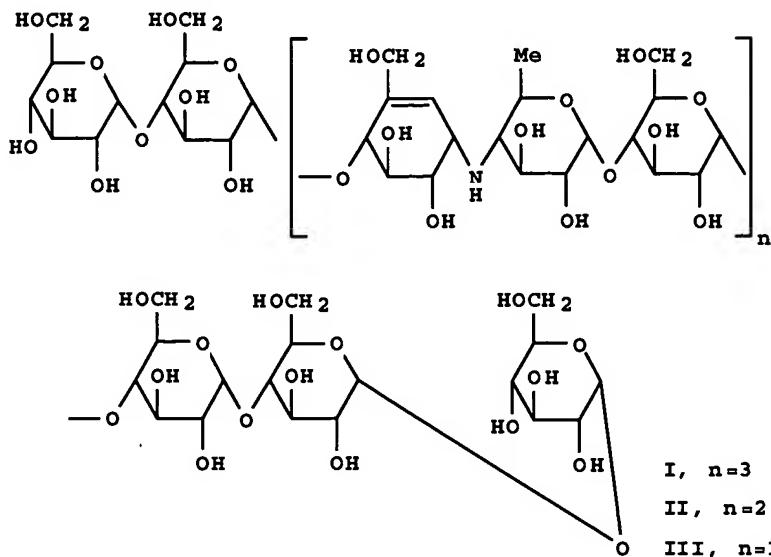
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Appl. No. 10/774,139

Filing Date: February 6, 2004

Reply to Office action of January 27, 2005

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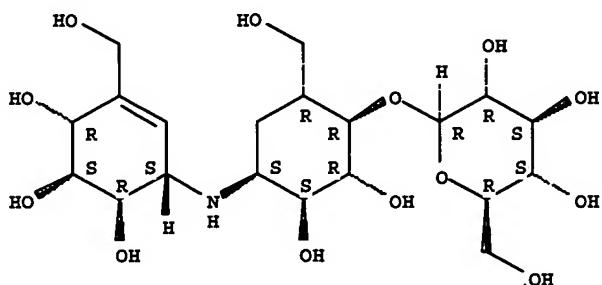


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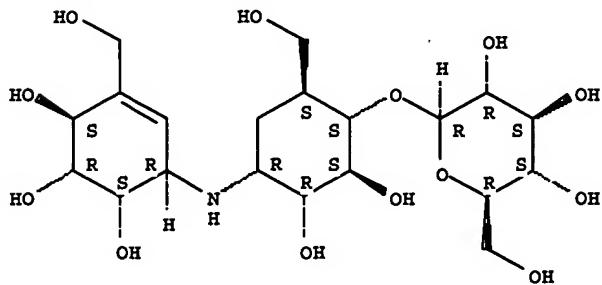
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RN-87037-90-9



RN-87037-36-3



FORM AMEND
Rev. 5/27/03

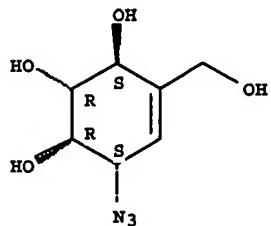
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Appl. No. 10/774,139

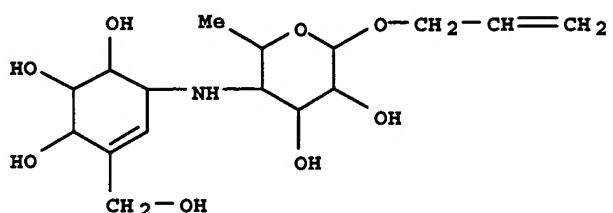
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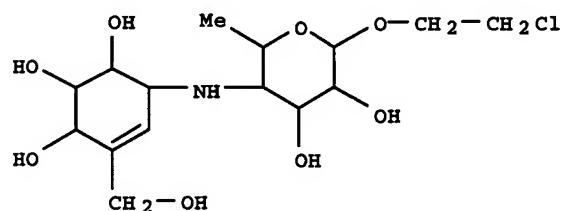
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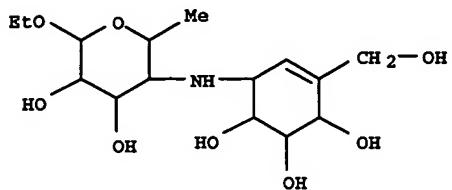
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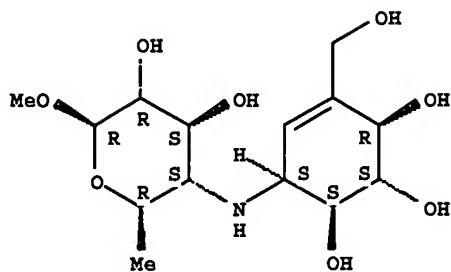
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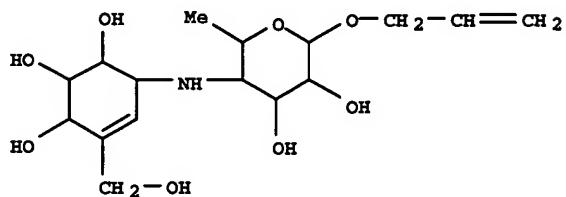
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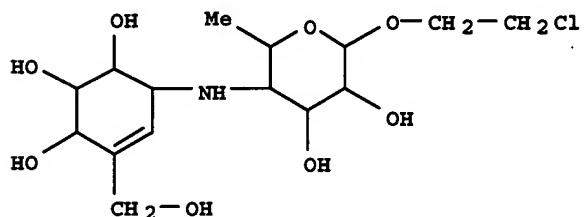
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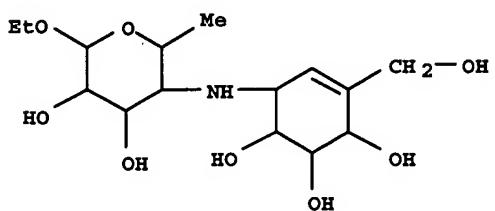
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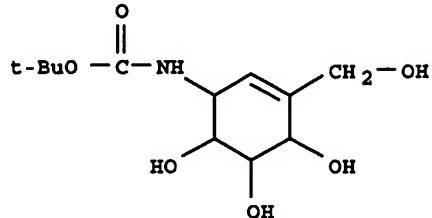
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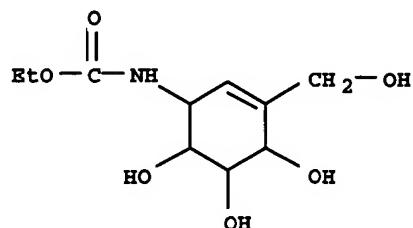
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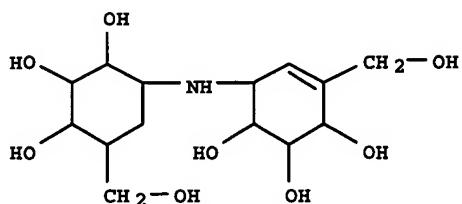
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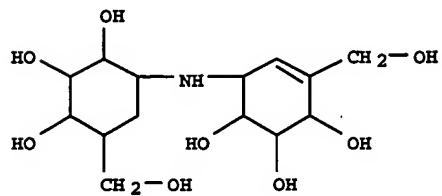
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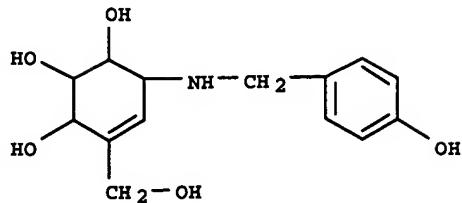
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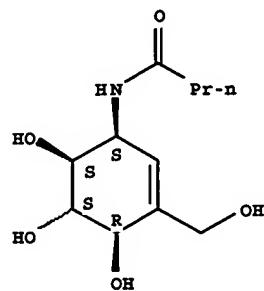
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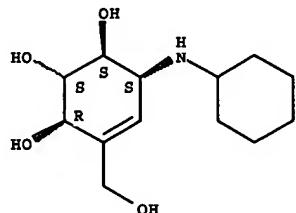
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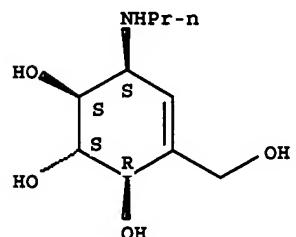
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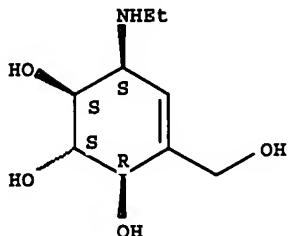
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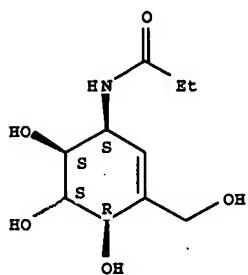
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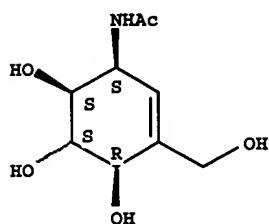
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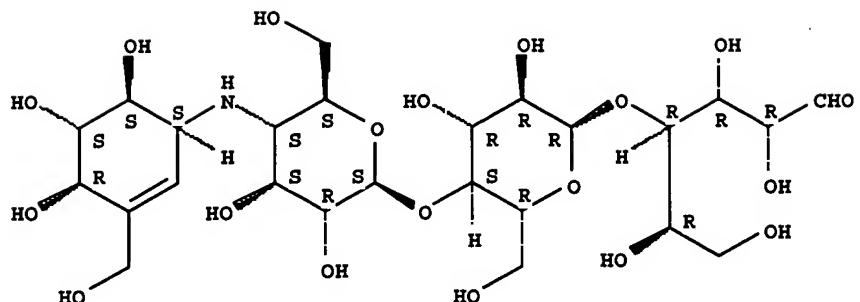
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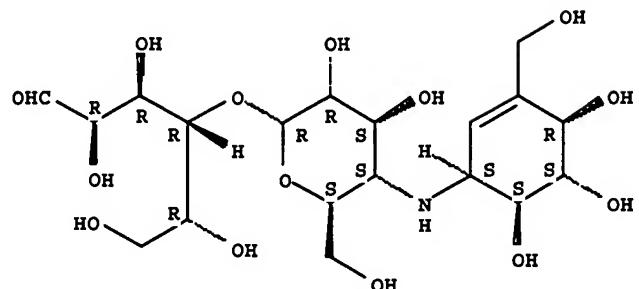
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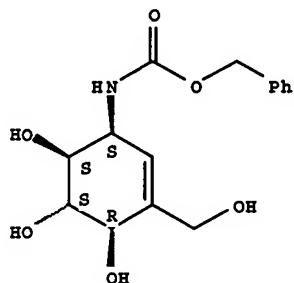
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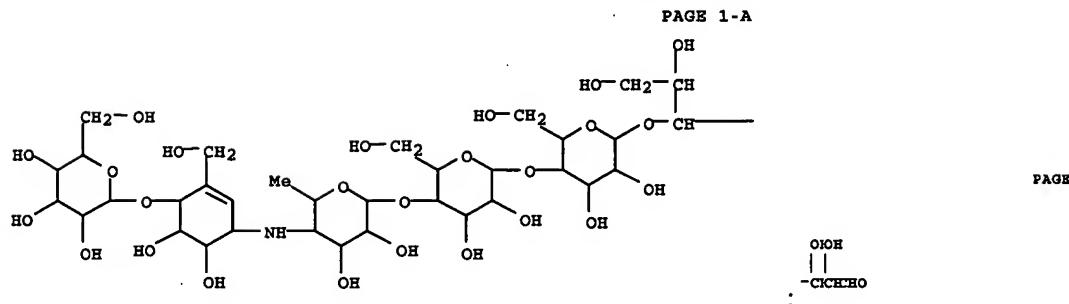
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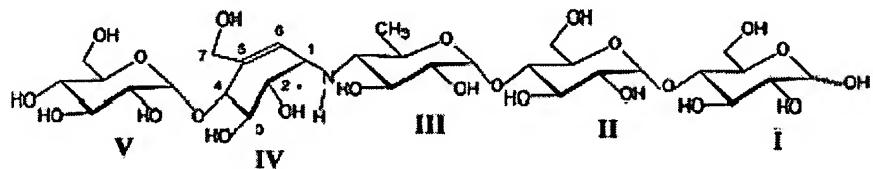
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FORM AMEND
Rev. 5/27/03

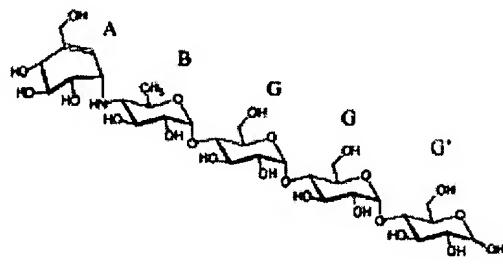
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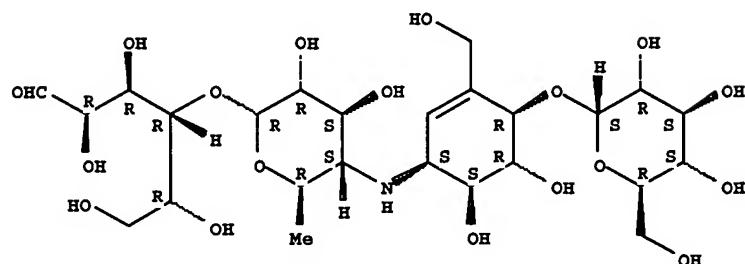
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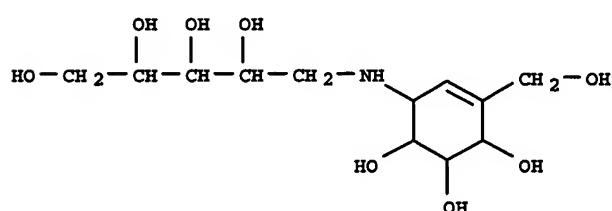
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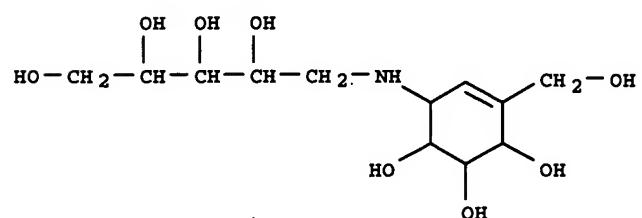
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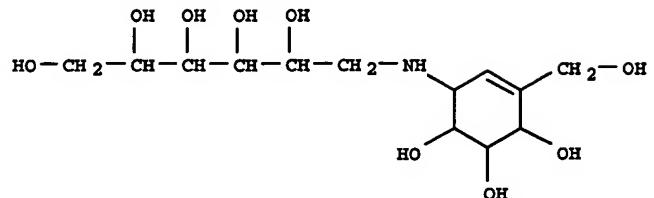
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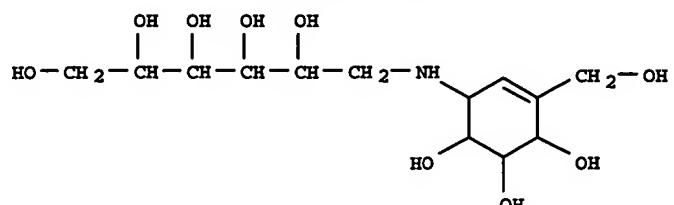
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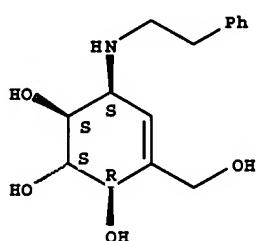
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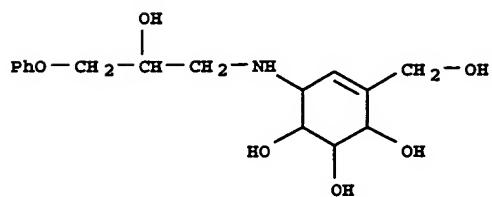


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FORM AMEND
Rev. 5/27/03

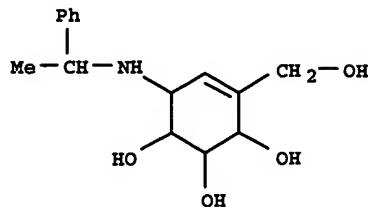
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Appl. No. 10/774,139

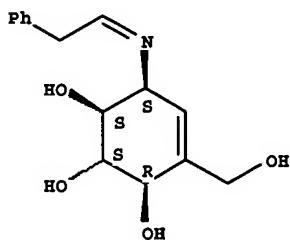
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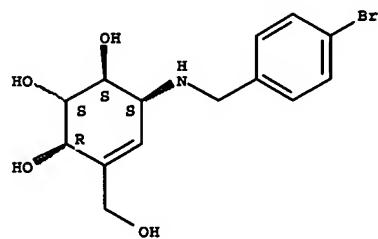
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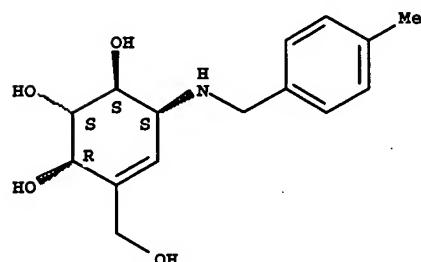
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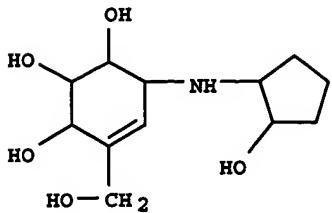
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Appl. No. 10/774,139

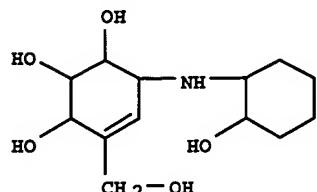
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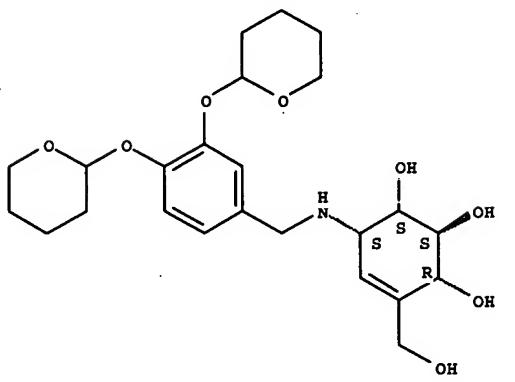
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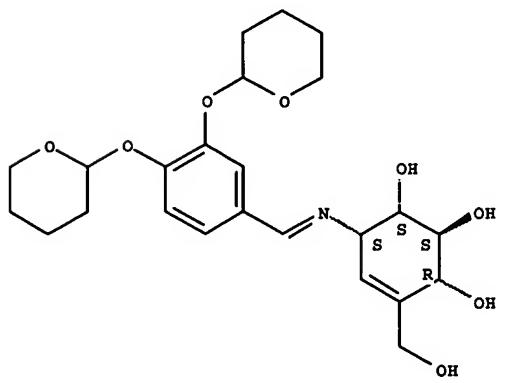
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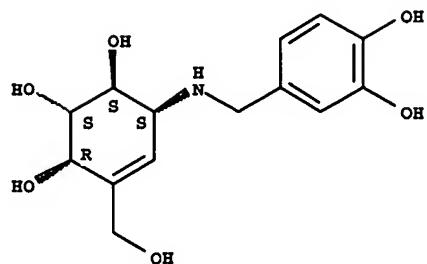
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Appl. No. 10/774,139

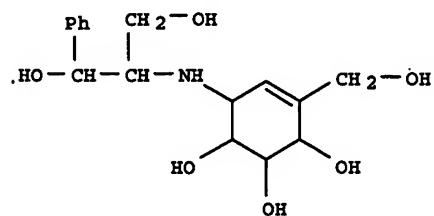
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Reply to Office action of January 27, 2005

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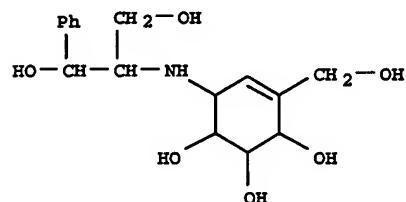


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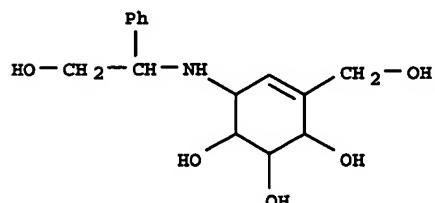


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FORM AMEND
Rev. 5/27/03

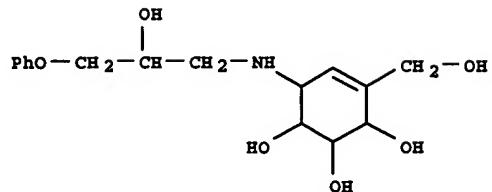
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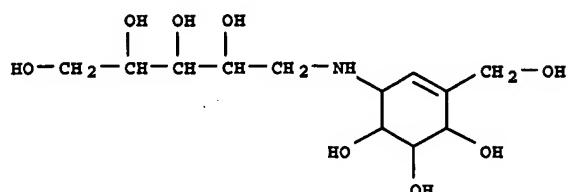
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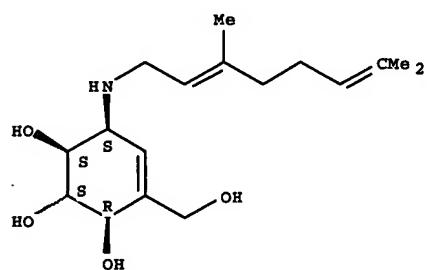
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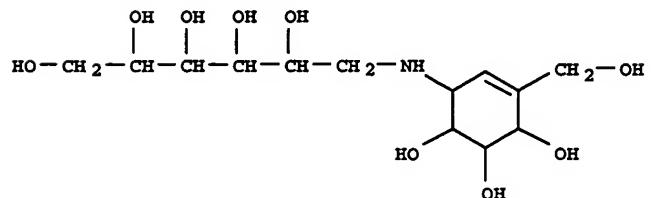
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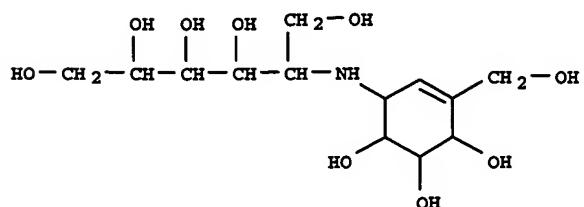
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FORM AMEND
Rev. 5/27/03

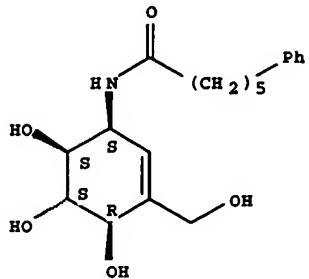
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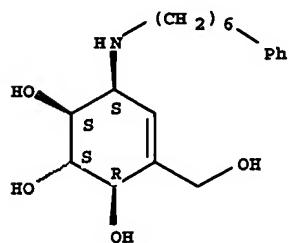
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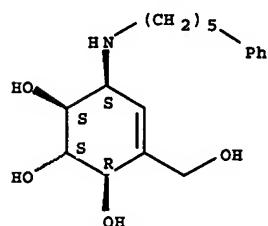
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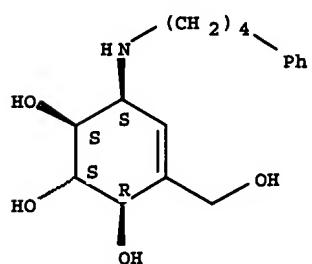
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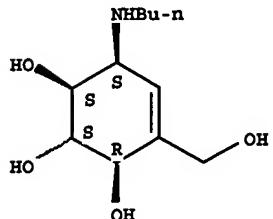
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Appl. No. 10/774,139

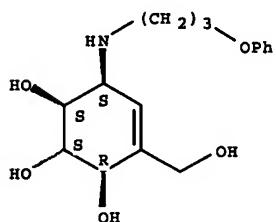
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Reply to Office action of January 27, 2005

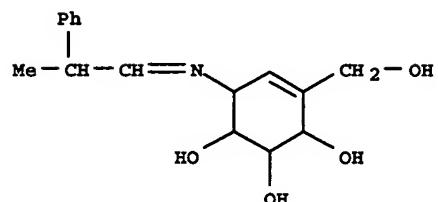
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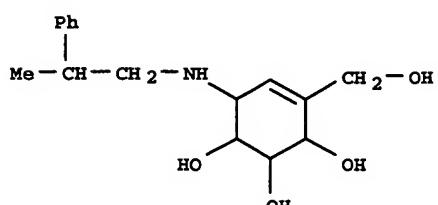
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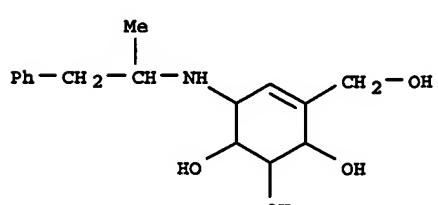
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FORM AMEND
Rev. 5/27/03

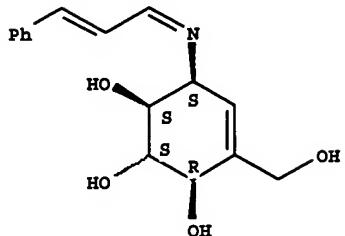
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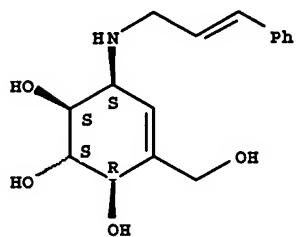
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Reply to Office action of January 27, 2005

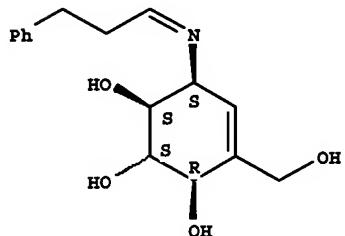
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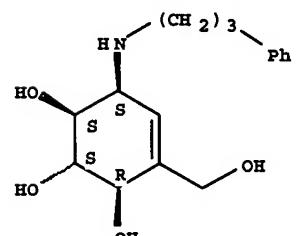
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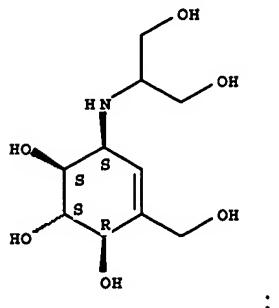
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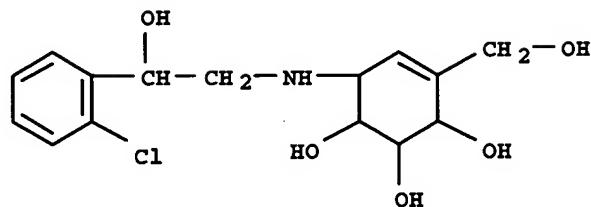
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Reply to Office action of January 27, 2005

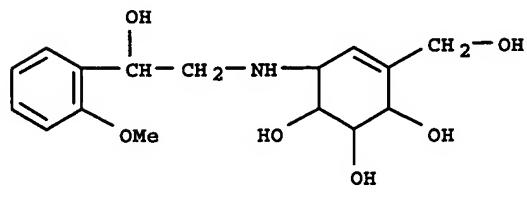
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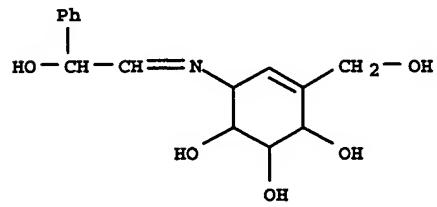
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FORM AMEND
Rev. 5/27/03

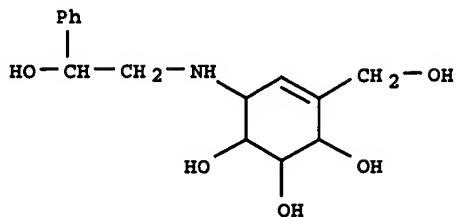
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Appl. No. 10/774,139

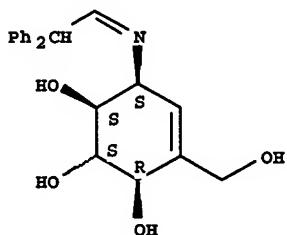
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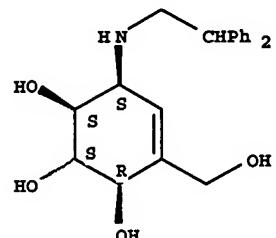
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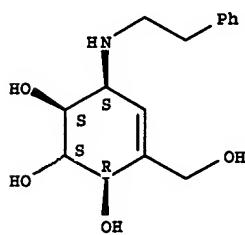
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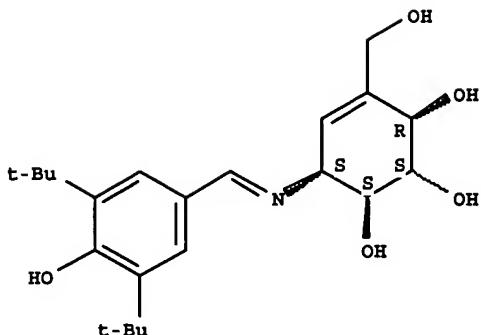
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Appl. No. 10/774,139

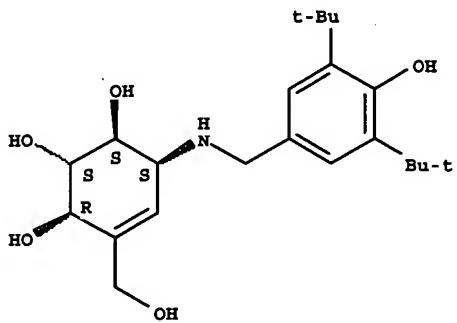
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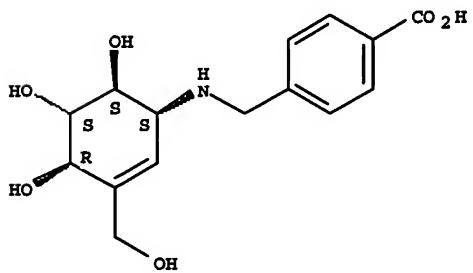
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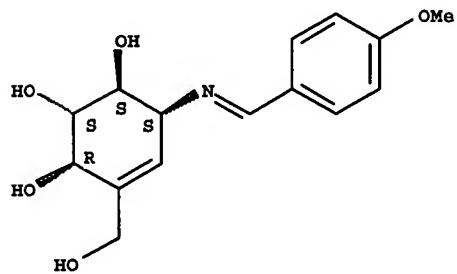
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FORM AMEND
Rev. 5/27/03

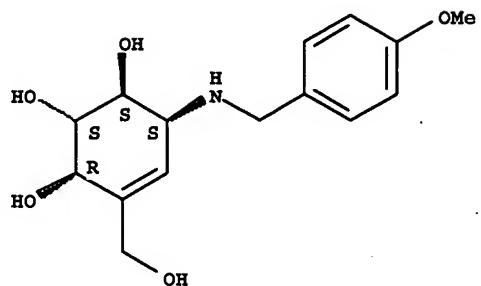
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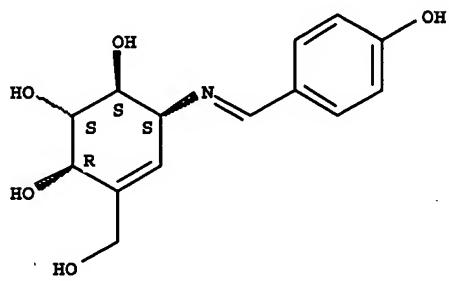
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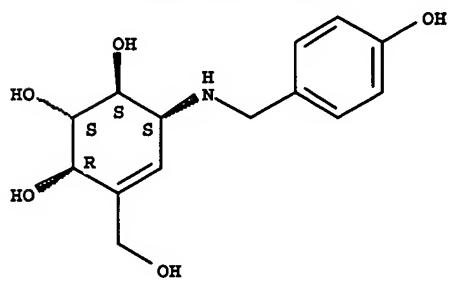
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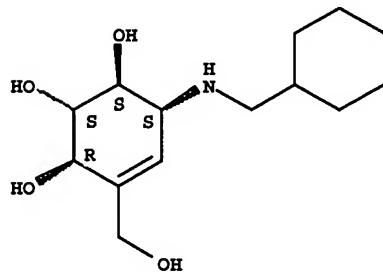
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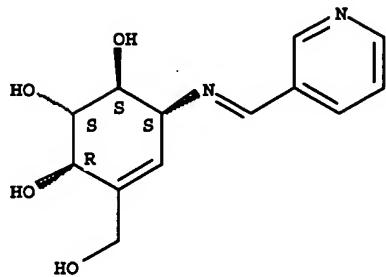
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Appl. No. 10/774,139

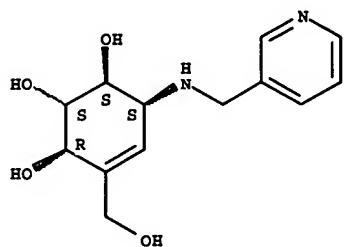
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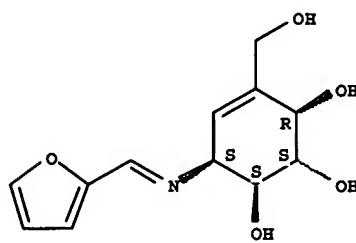
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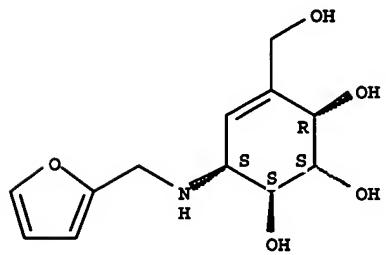
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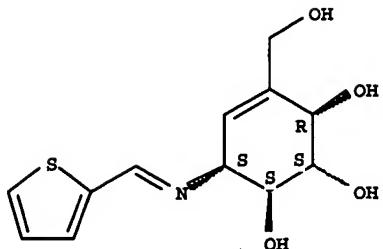
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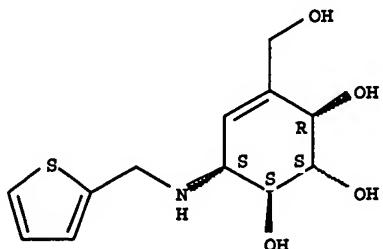
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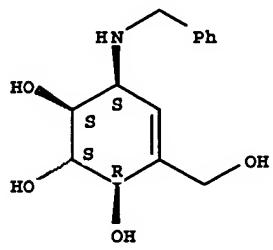
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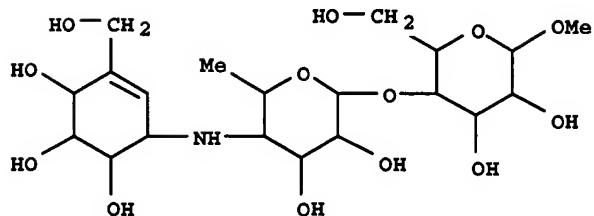
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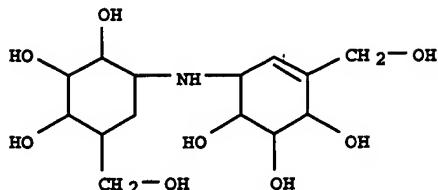
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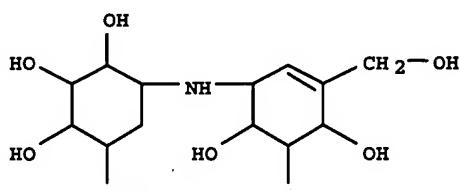
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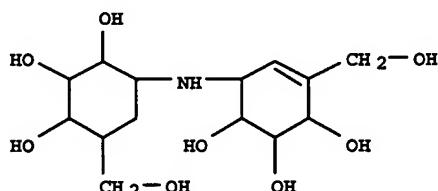
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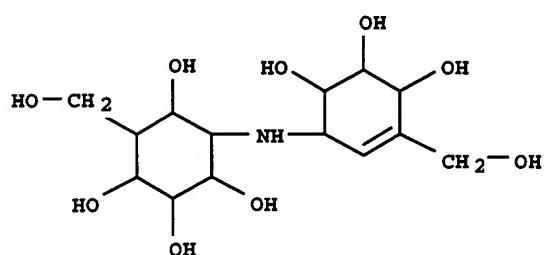
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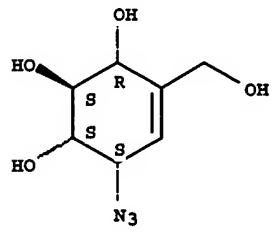
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FORM AMEND
Rev. 5/27/03

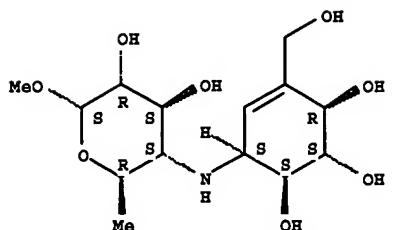
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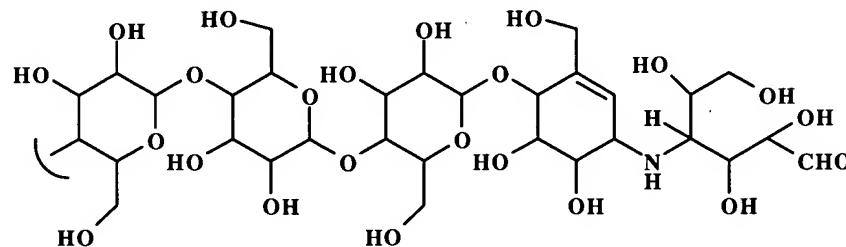
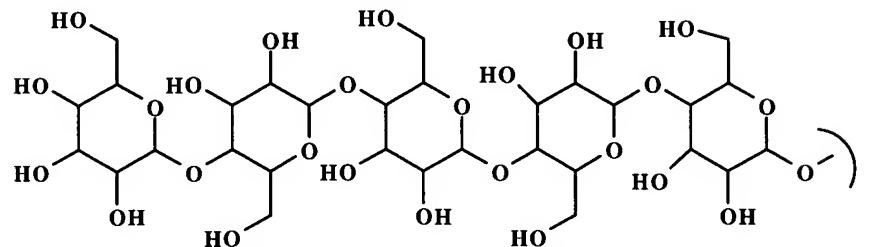
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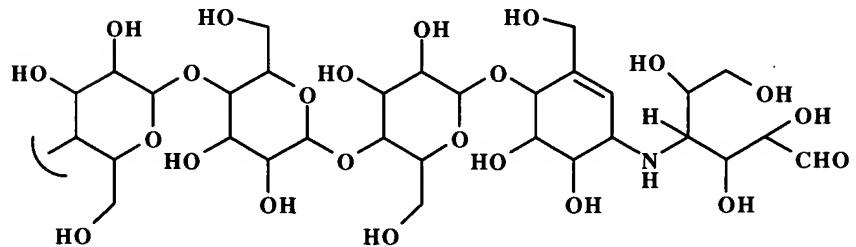
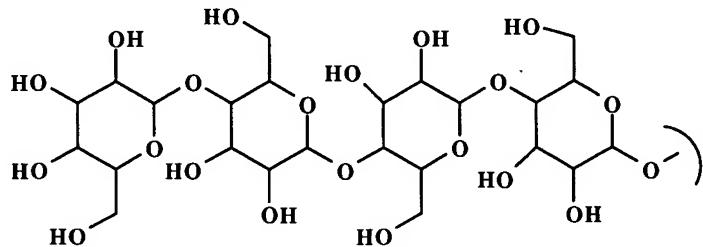
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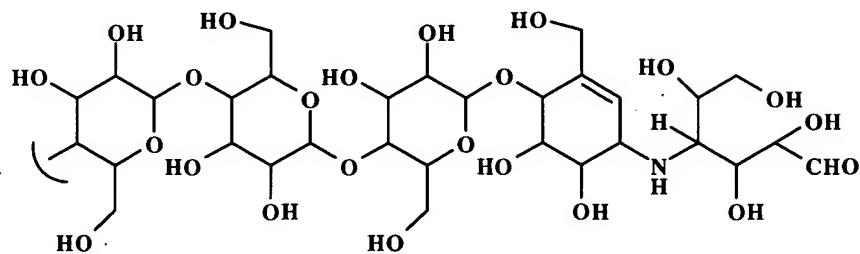
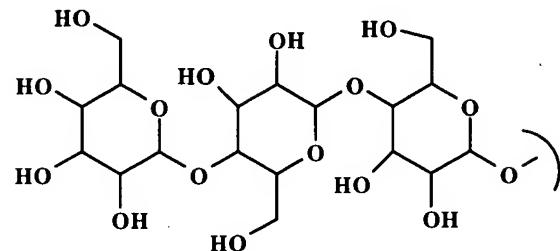
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Appl. No. 10/774,139

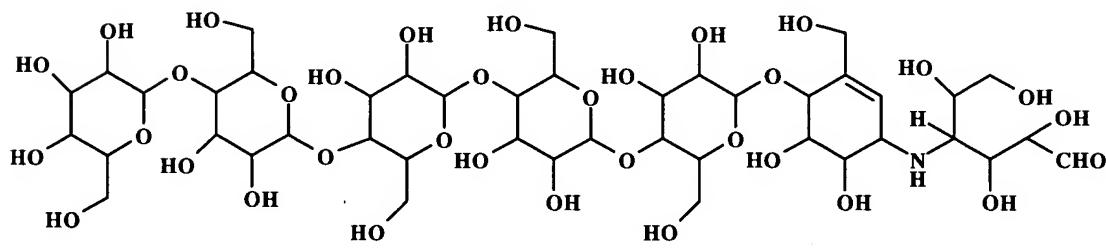
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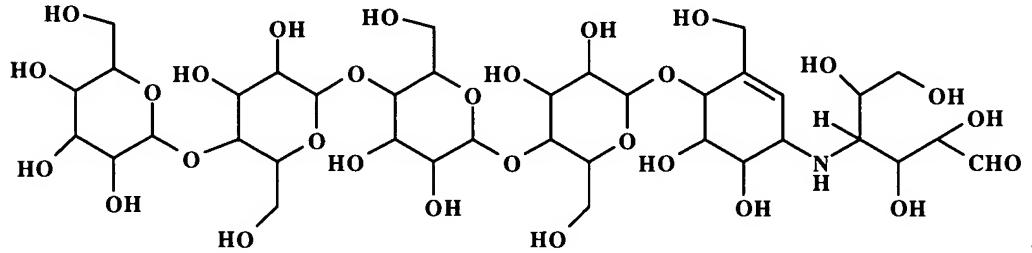
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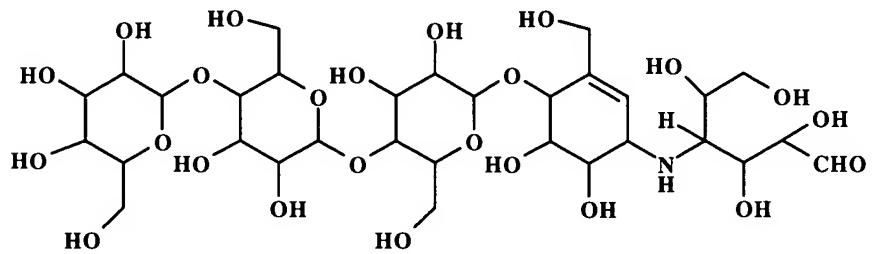
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FORM AMEND
Rev. 5/27/03

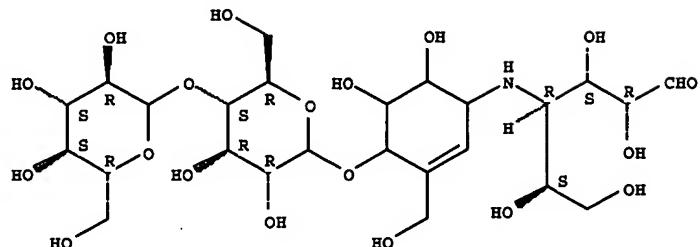
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Appl. No. 10/774,139

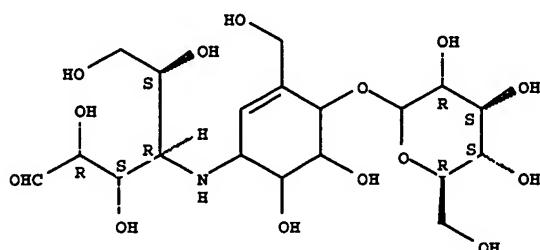
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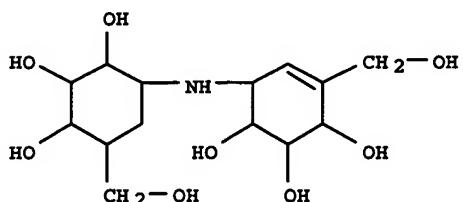
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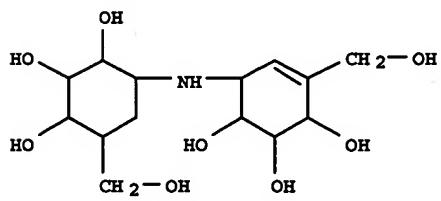
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FORM AMEND
Rev. 5/27/03

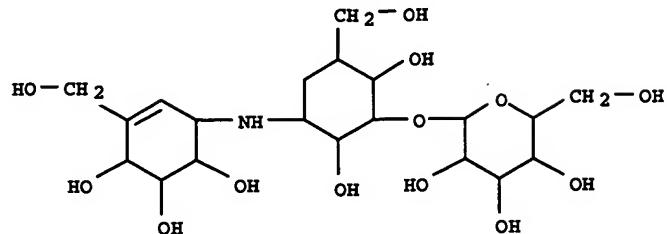
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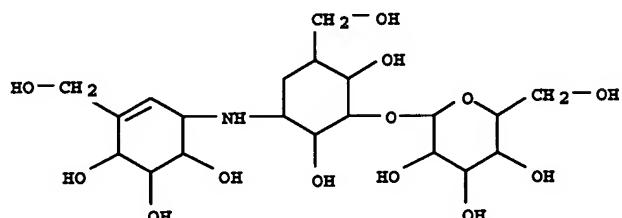
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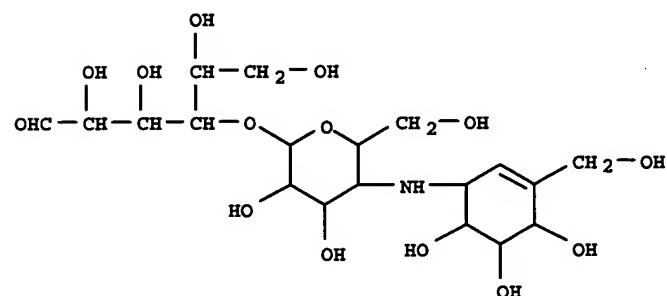
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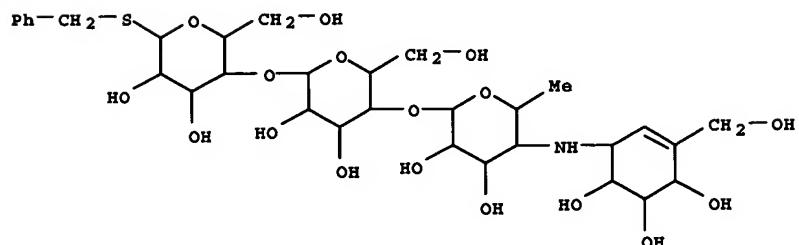
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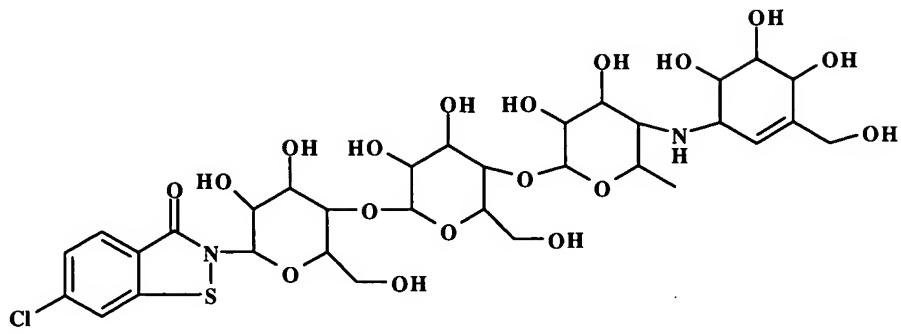
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Appl. No. 10/774,139

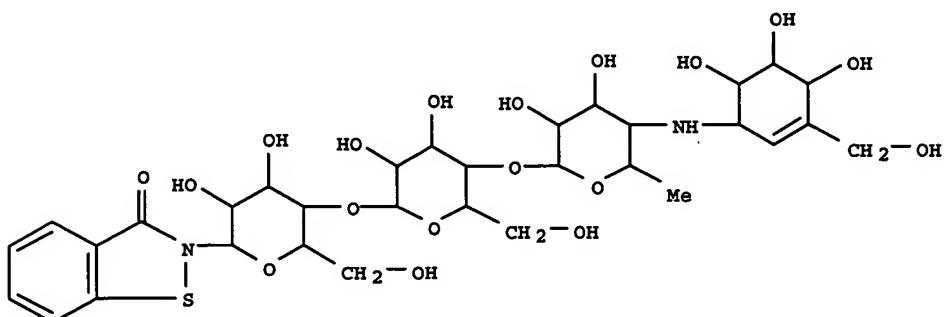
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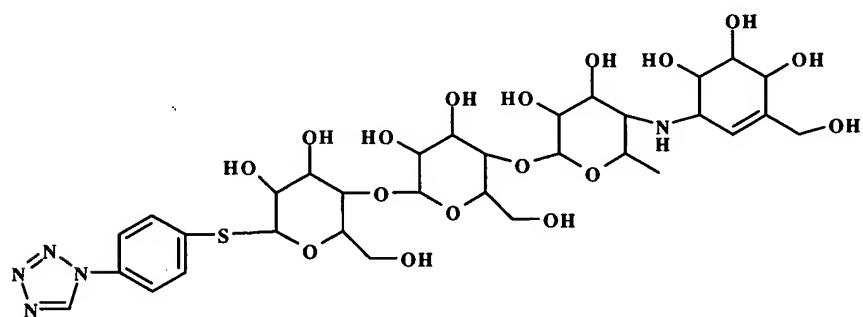
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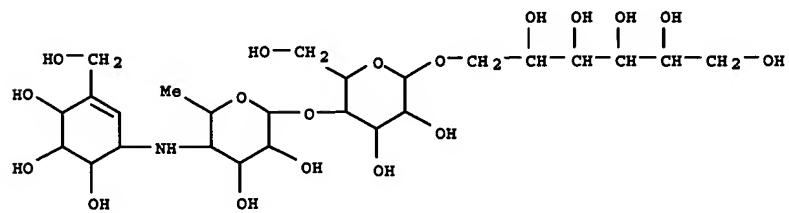
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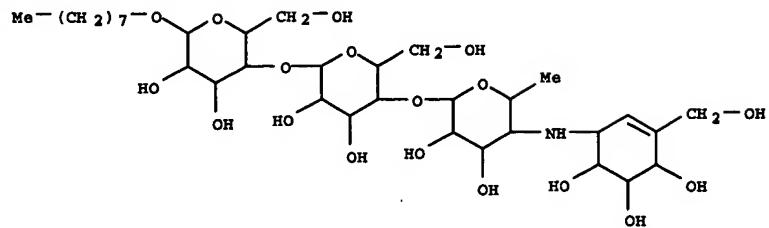
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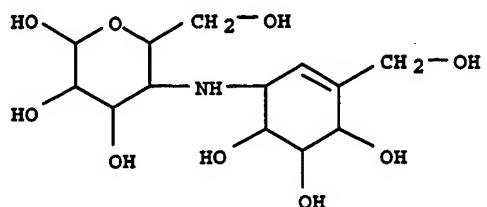
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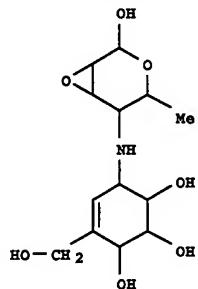
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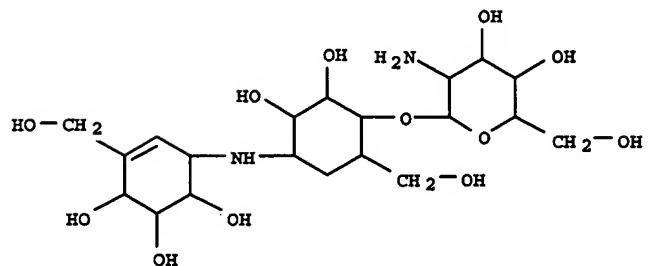
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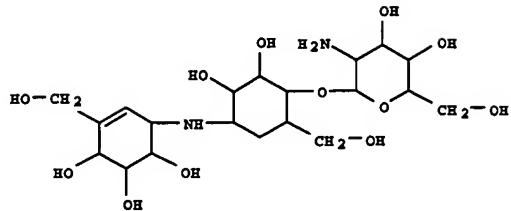
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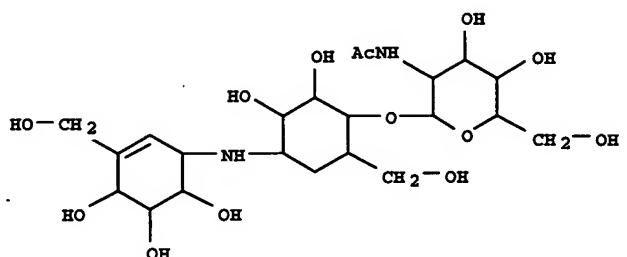
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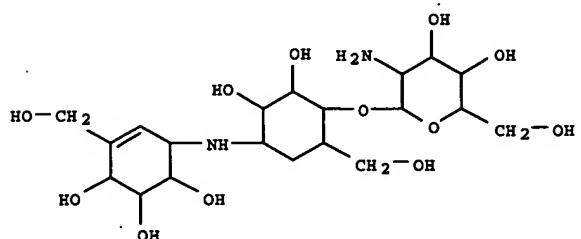


• HCl

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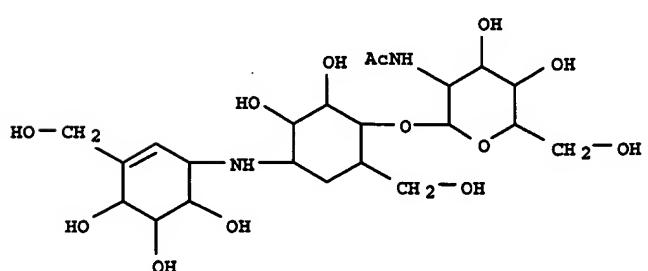


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RN-73469-81-5



FORM AMEND
Rev. 5/27/03

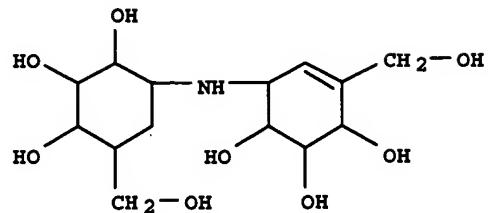
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Appl. No. 10/774,139

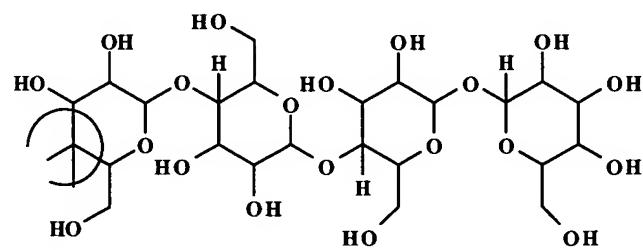
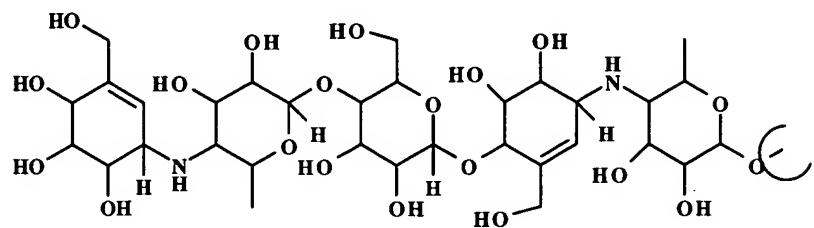
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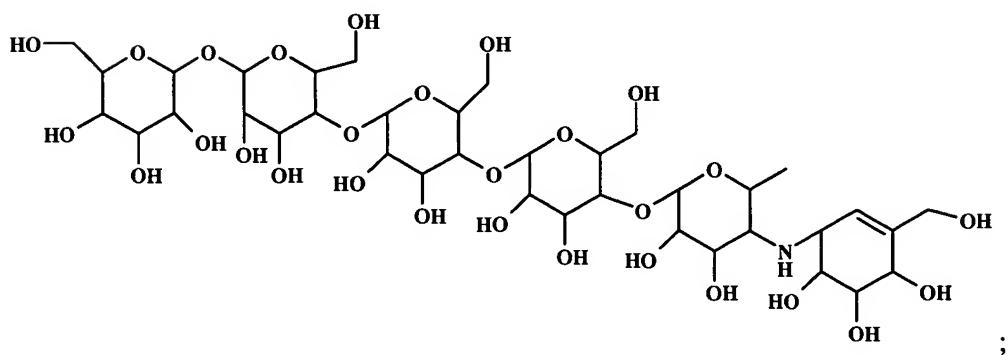
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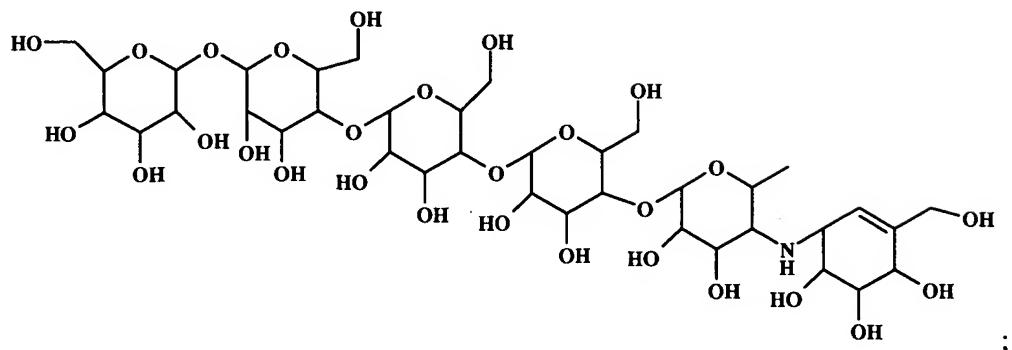
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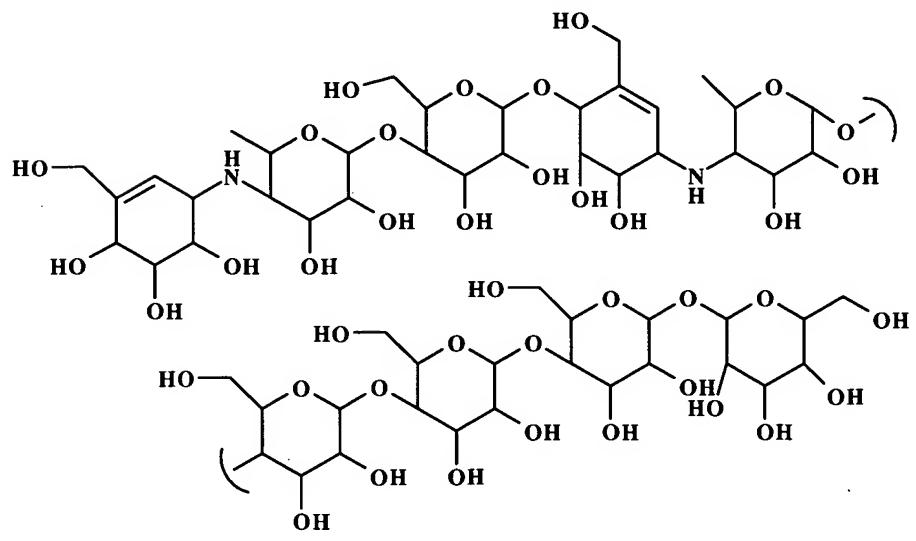
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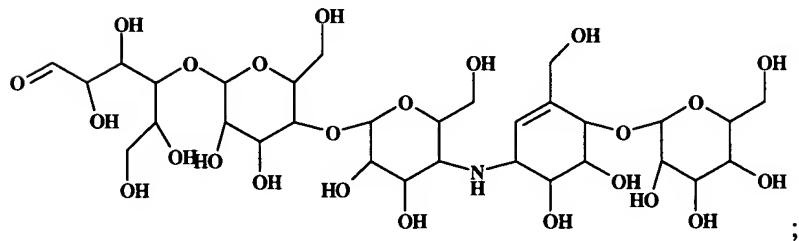
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RN-71828-09-6



HCl salt

RN-71605-25-9



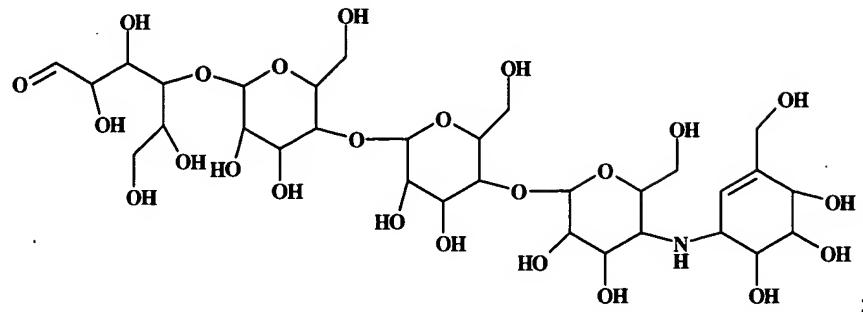
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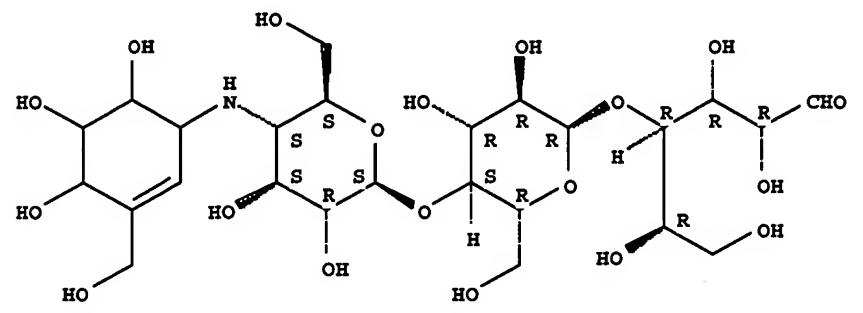
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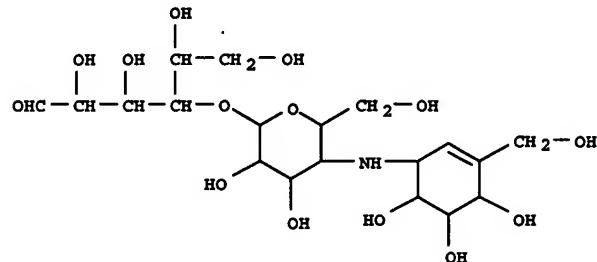
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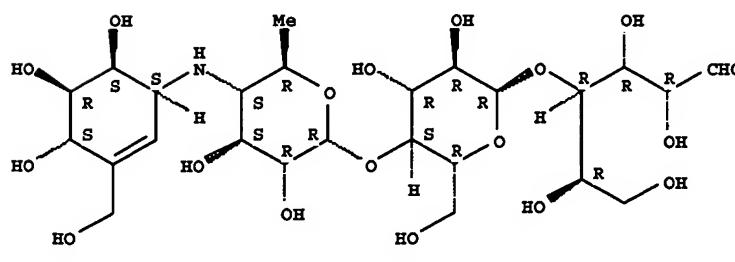
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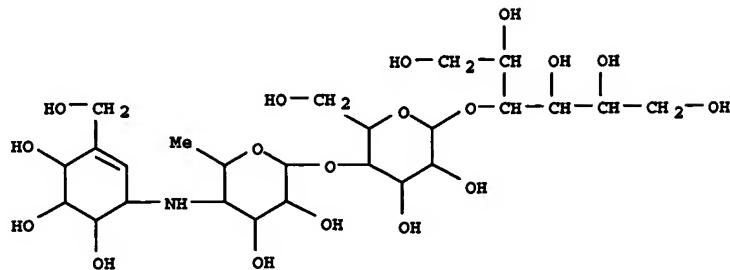
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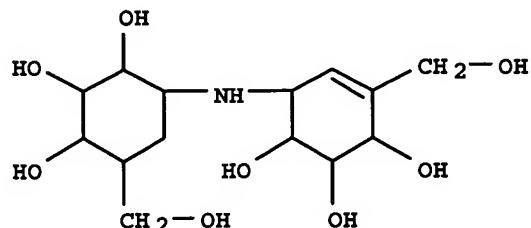
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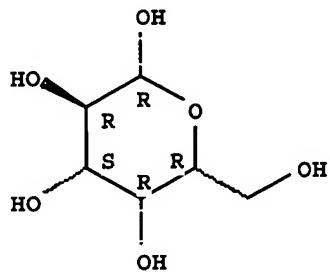


RN-68422-39-9

Component Number 1



Component Number 2



RN-68422-38-8

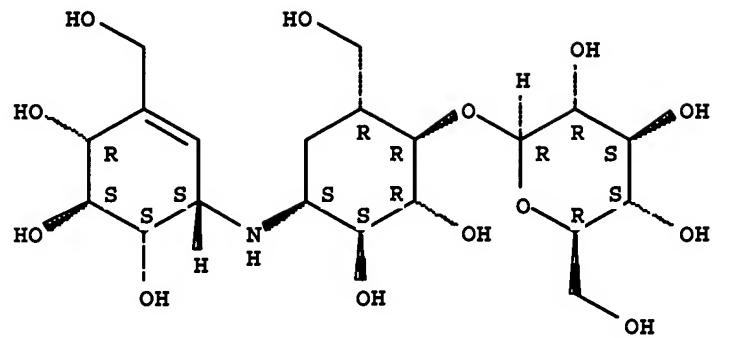
Component Number 1

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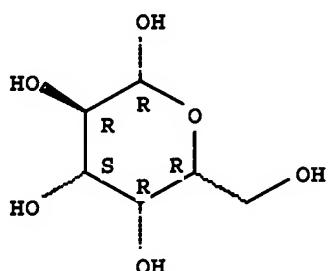
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Filing Date: February 6, 2004

Reply to Office action of January 27, 2005

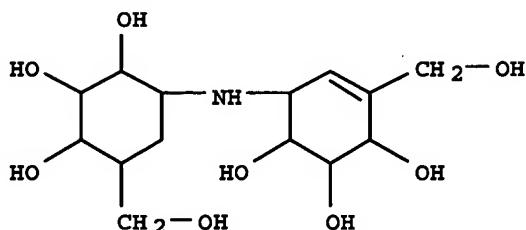


Component Number 2



RN-68422-37-7

Component Number 1



FORM AMEND
Rev. 5/27/03

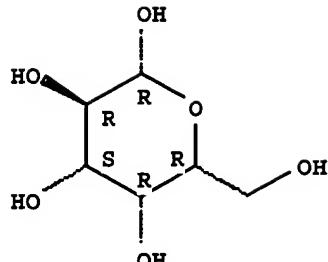
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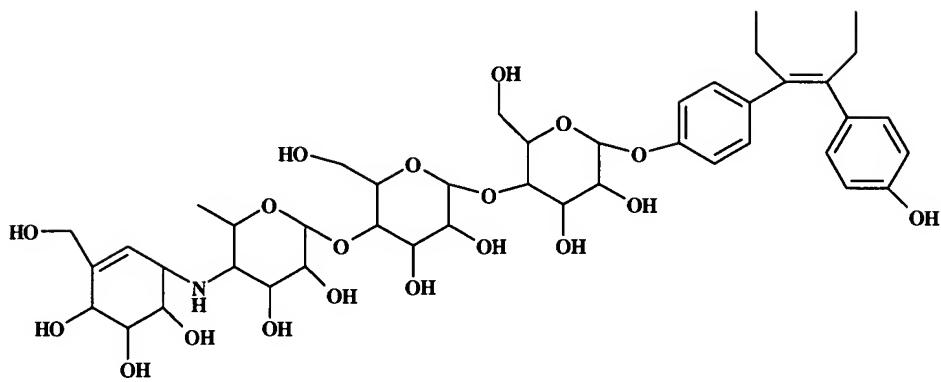
Reply to Office action of January 27, 2005

Component Number 2



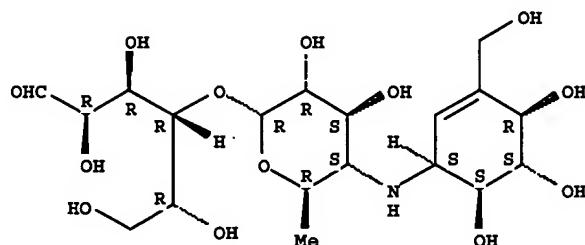
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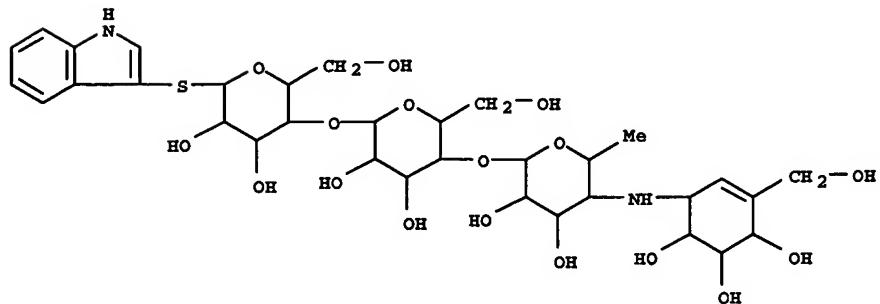
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FORM AMEND
Rev. 5/27/03

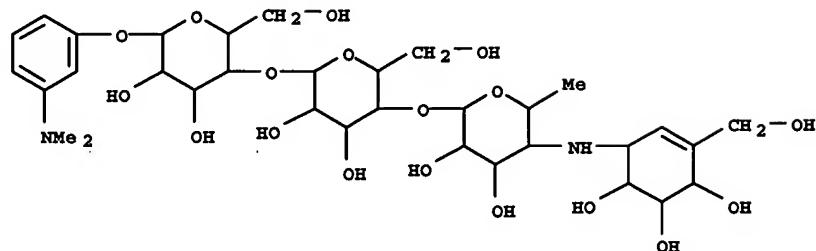
PATENT/Docket No. PC10922C

Appl. No. 10/774,139

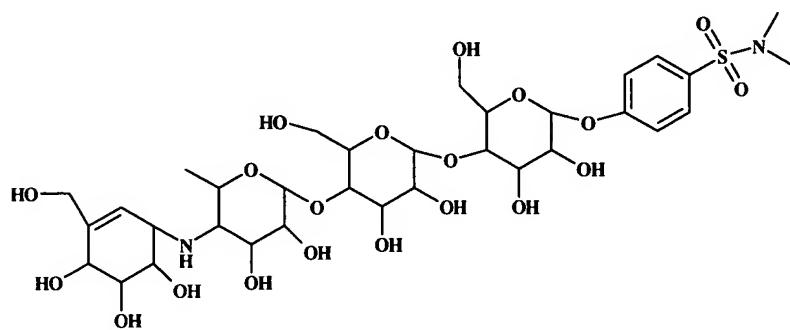
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Reply to Office action of January 27, 2005

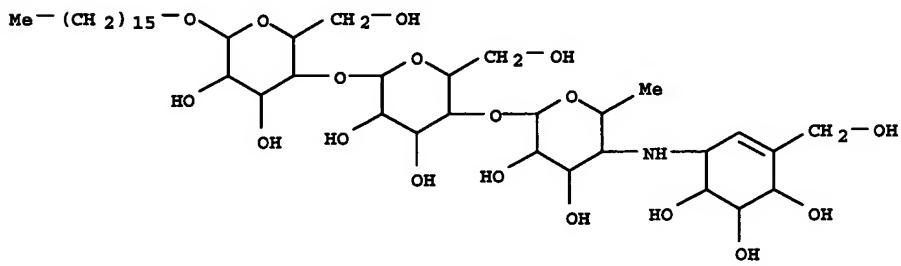
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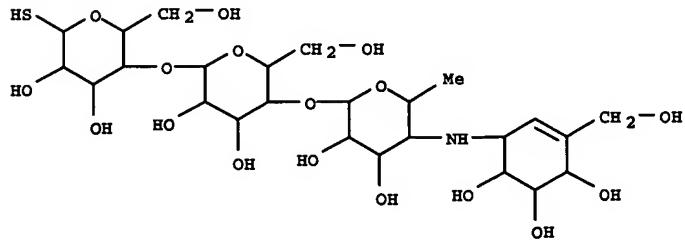
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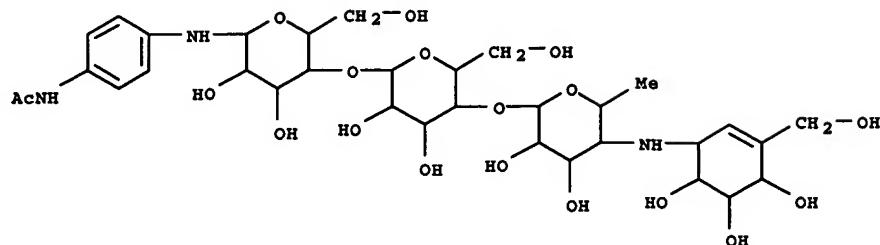
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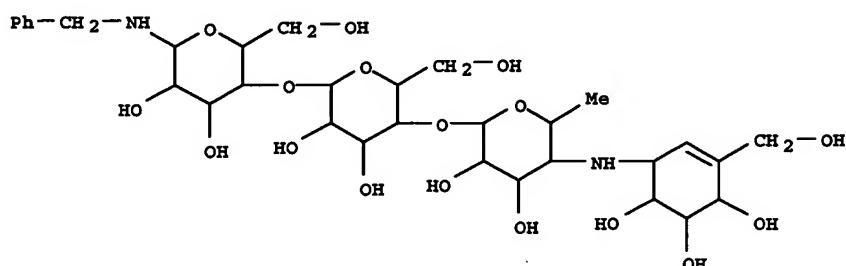
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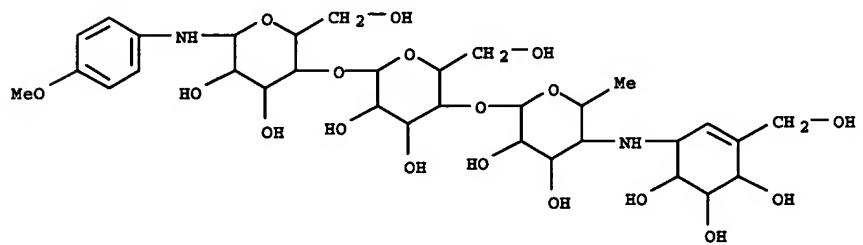
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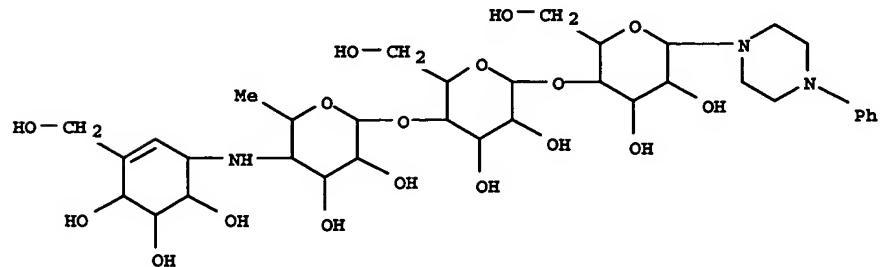
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FORM AMEND
Rev. 5/27/03

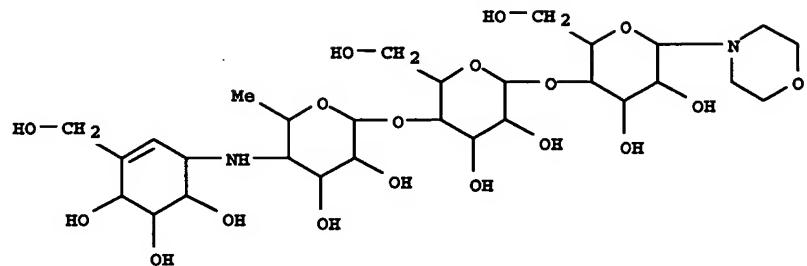
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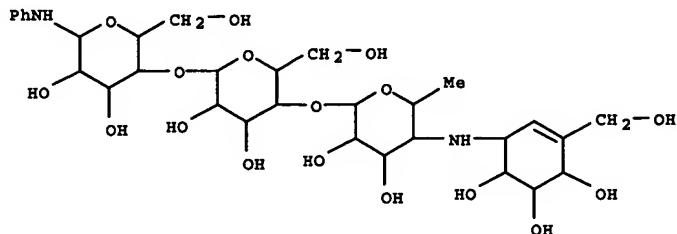
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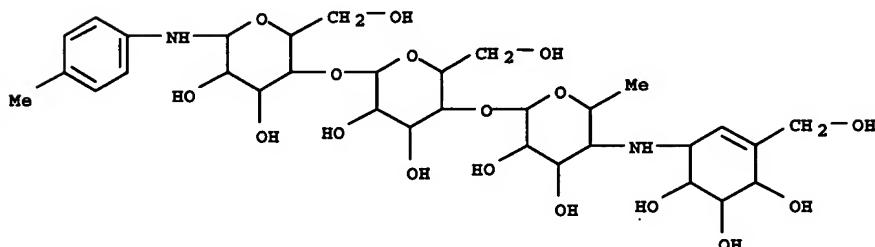
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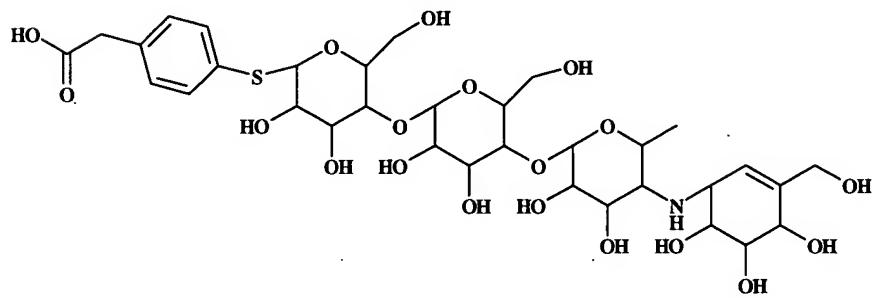
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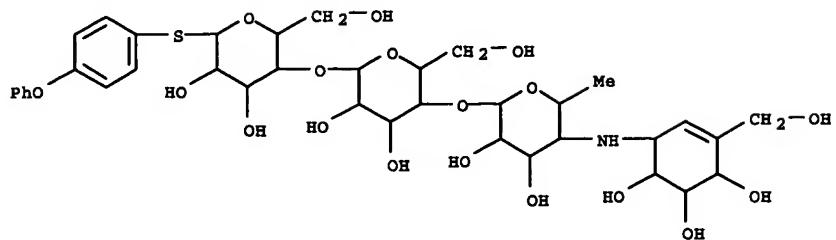
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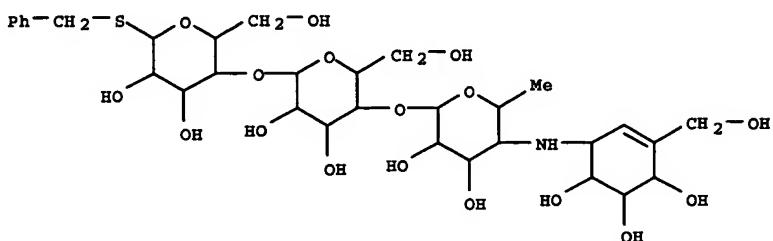
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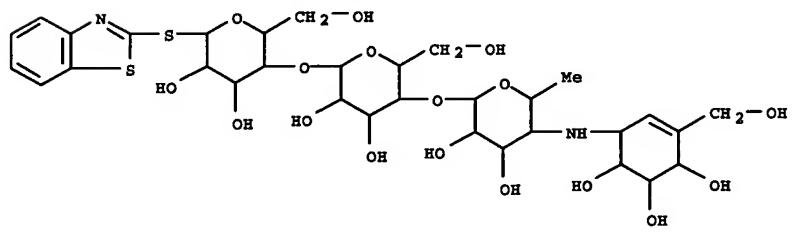
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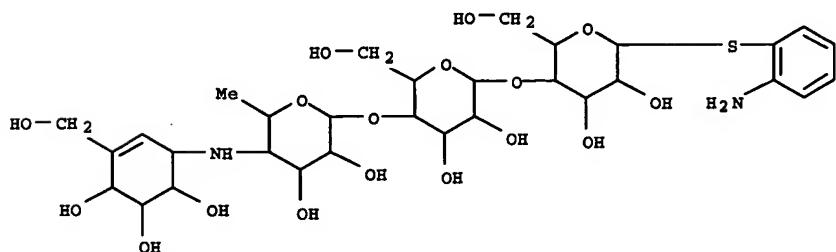
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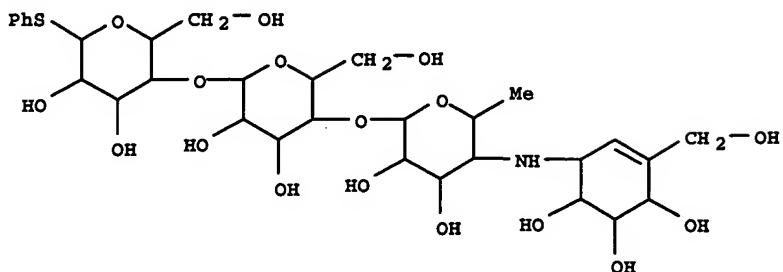
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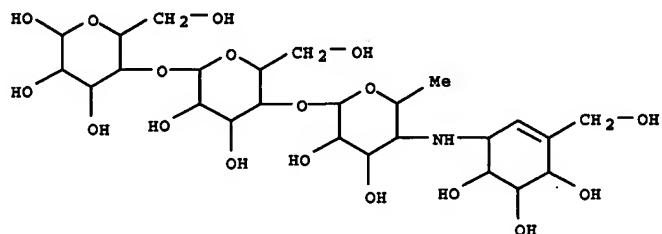
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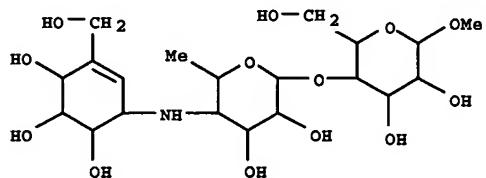
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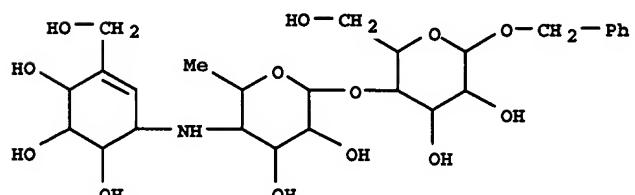
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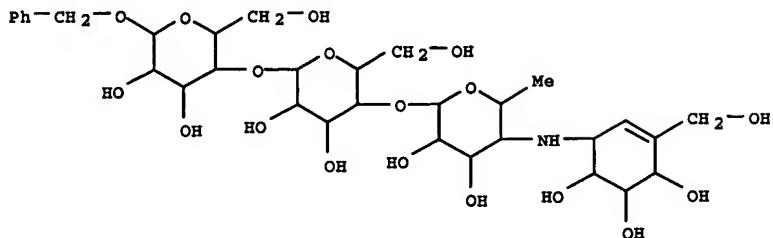
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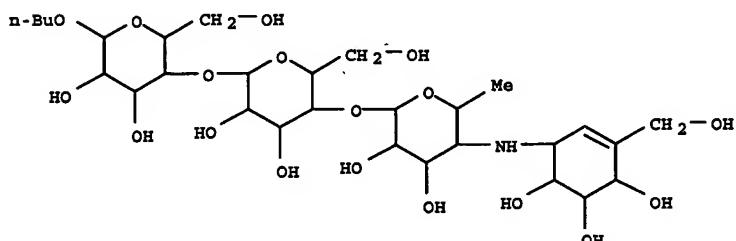
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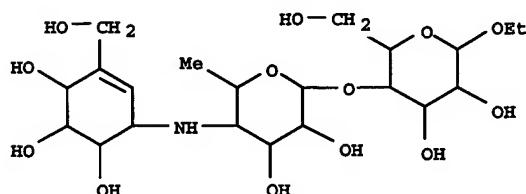
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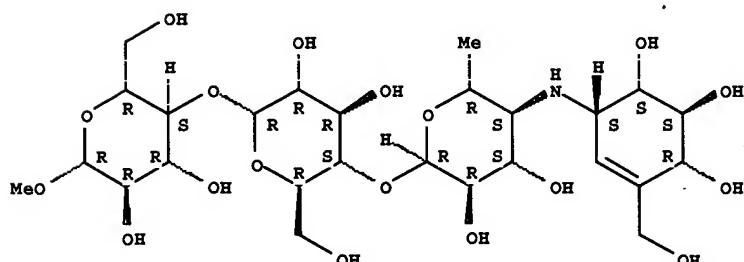
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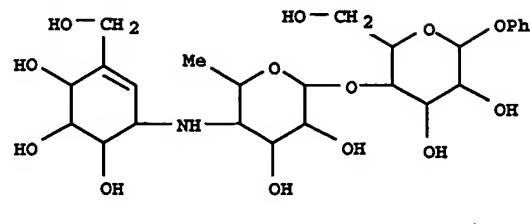
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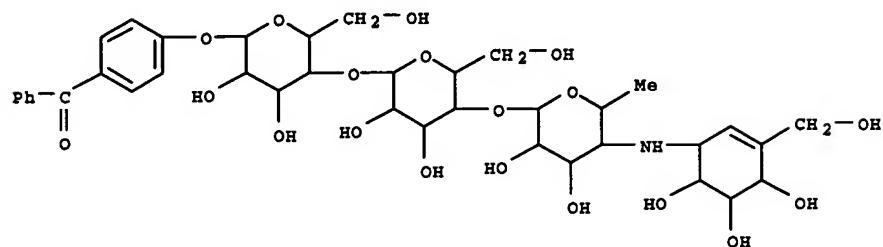
Reply to Office action of January 27, 2005

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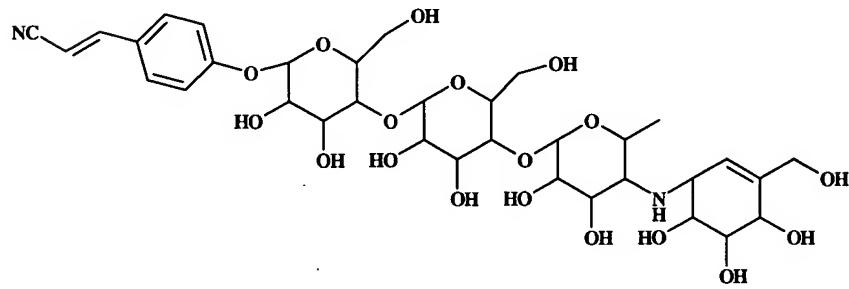
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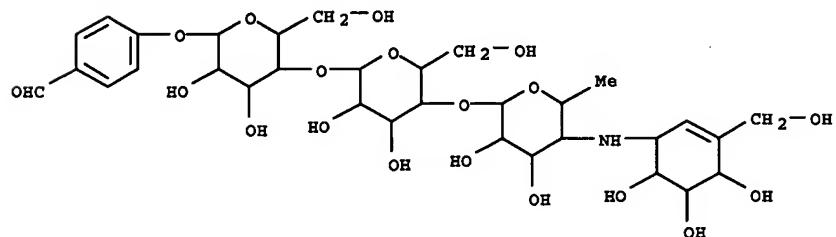
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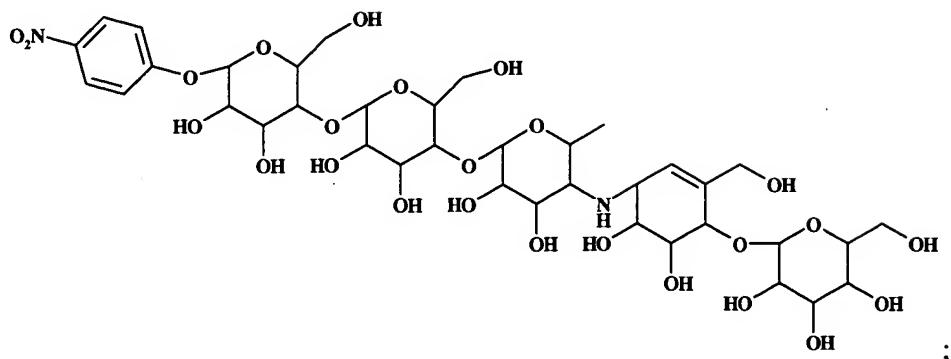
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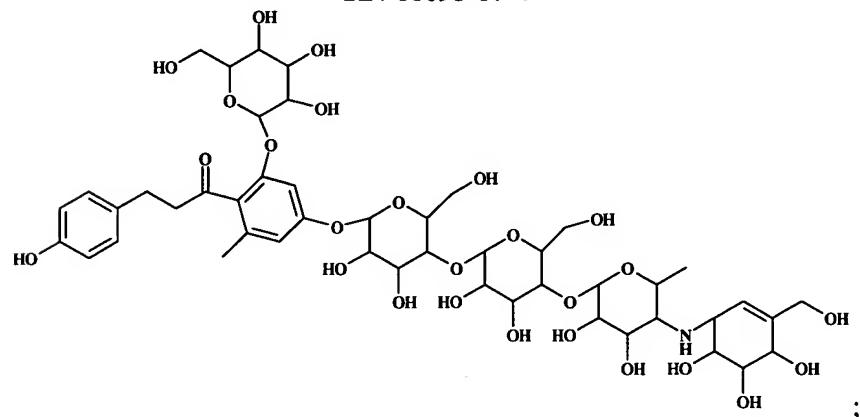
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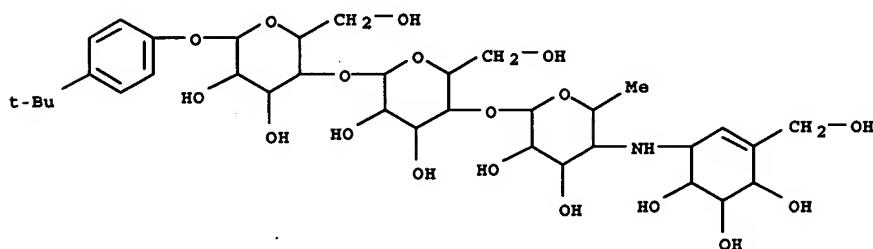
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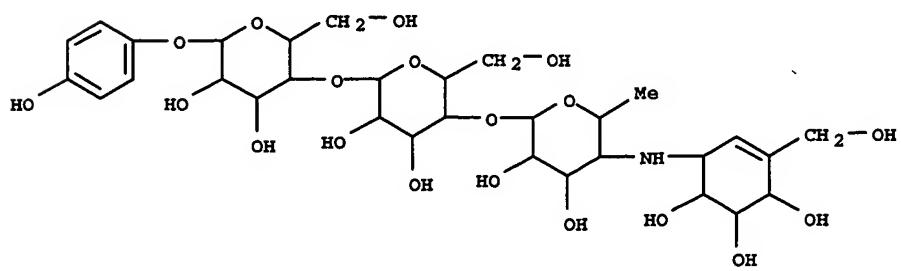
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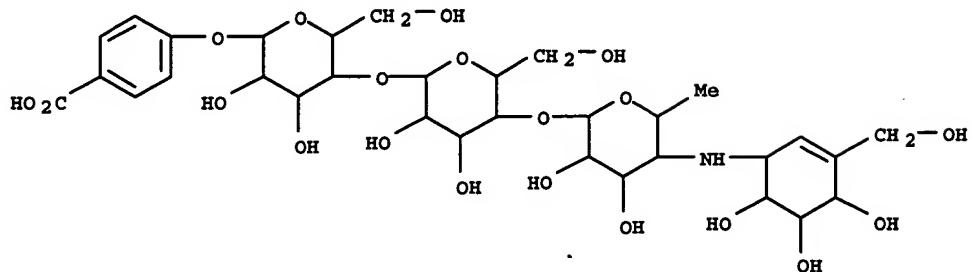
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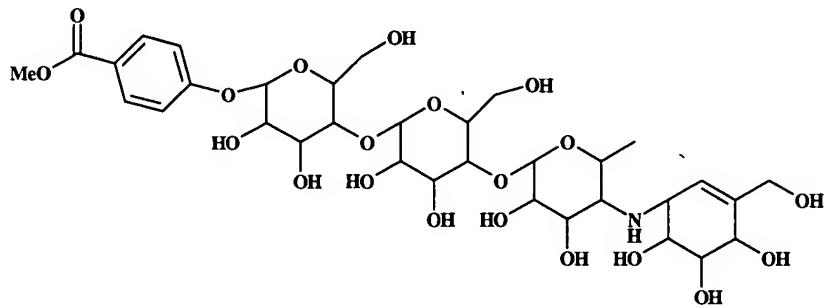
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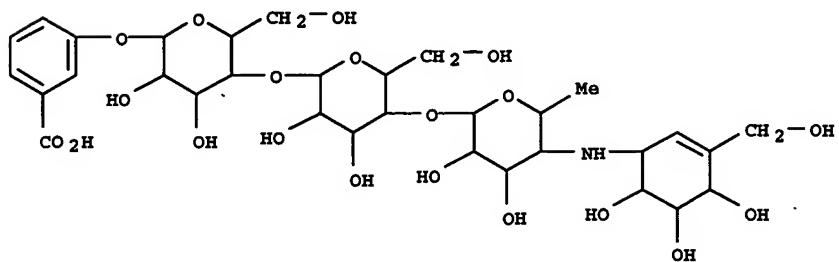
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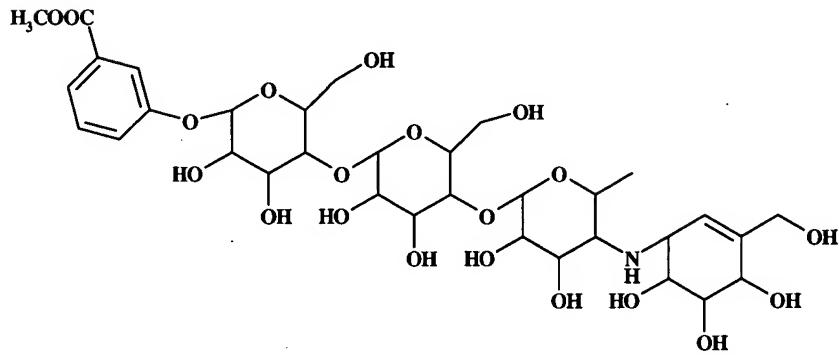
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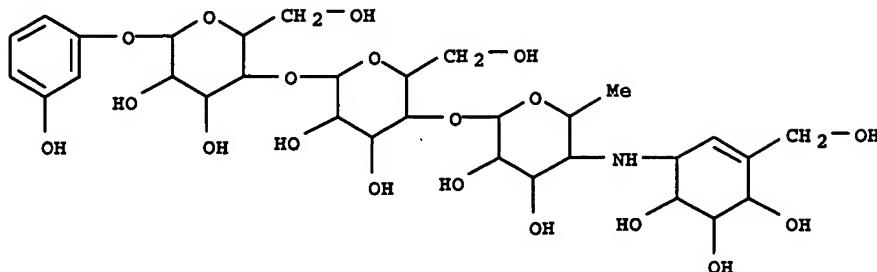
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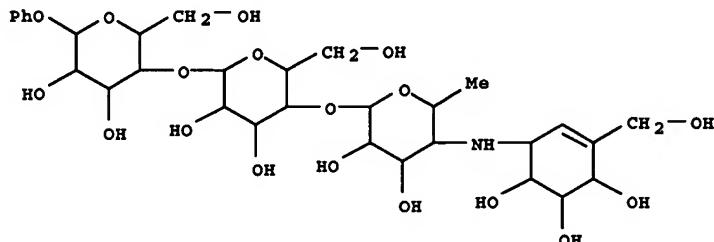
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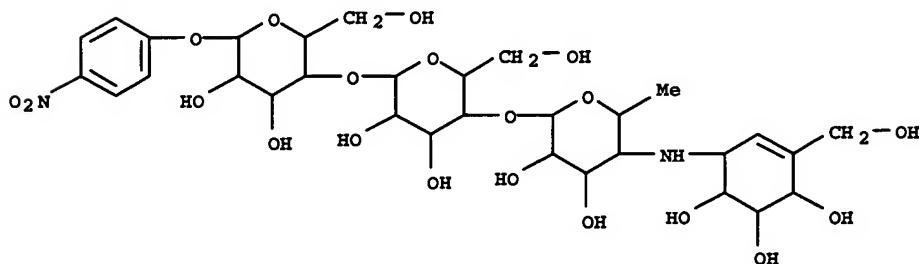
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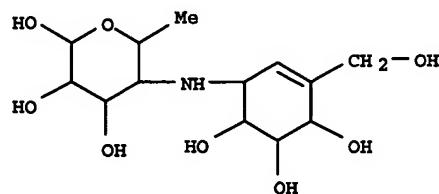
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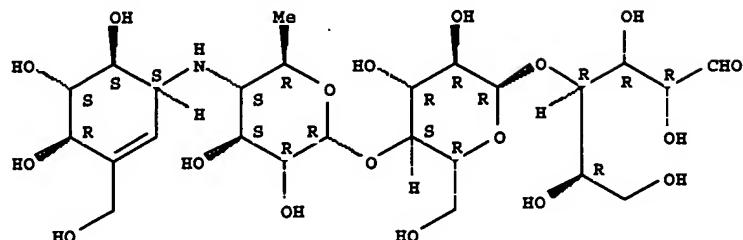
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Appl. No. 10/774,139

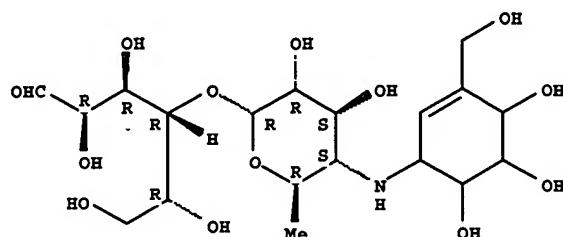
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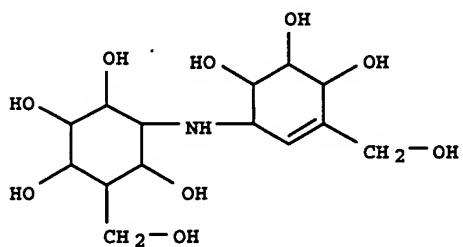
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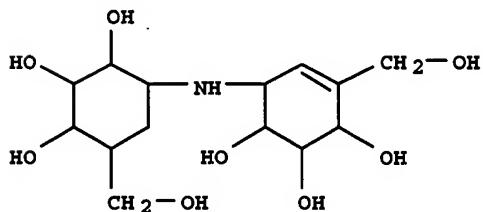
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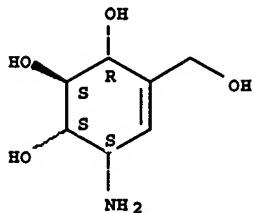
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Appl. No. 10/774,139

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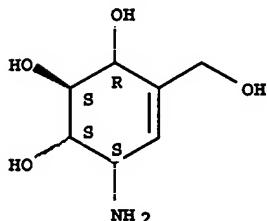
Reply to Office action of January 27, 2005

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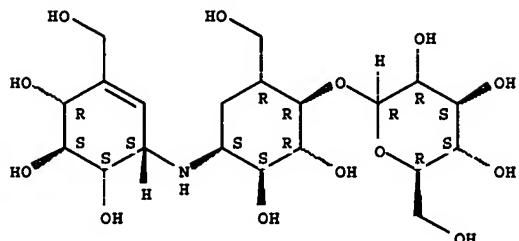


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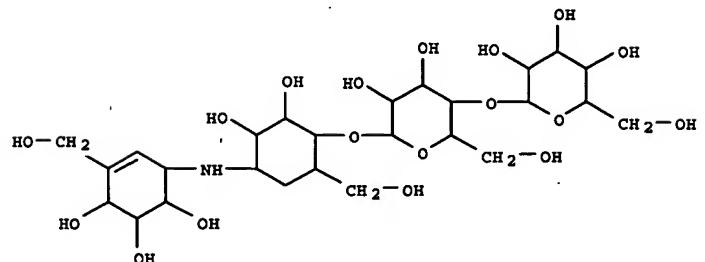
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FORM AMEND
Rev. 5/27/03

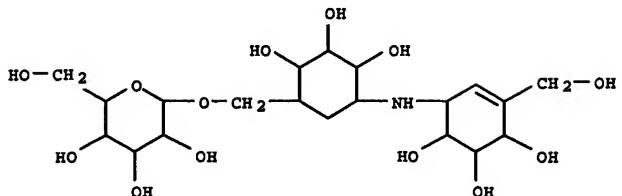
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Appl. No. 10/774,139

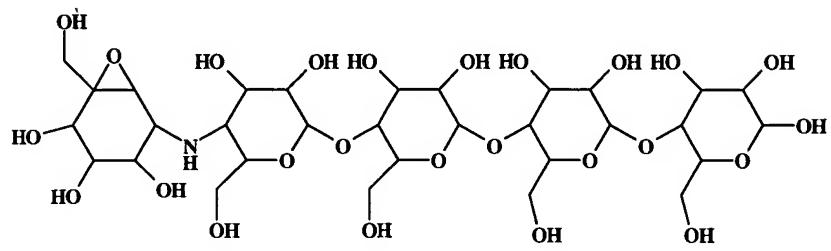
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Reply to Office action of January 27, 2005

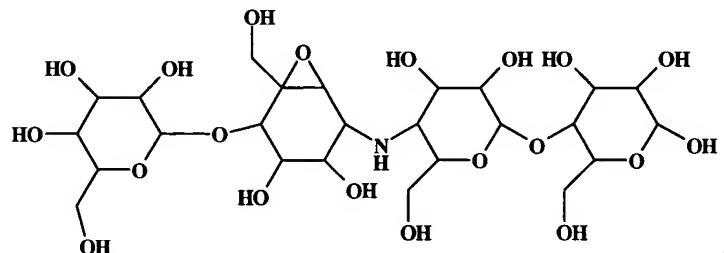
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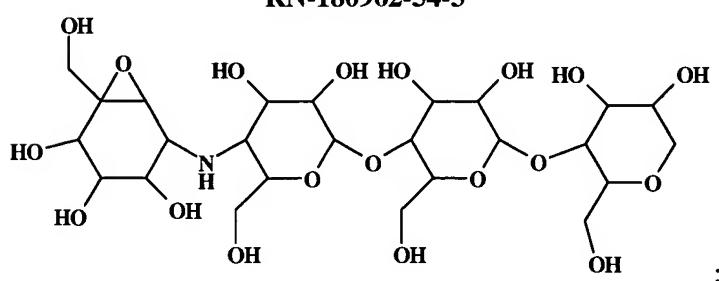
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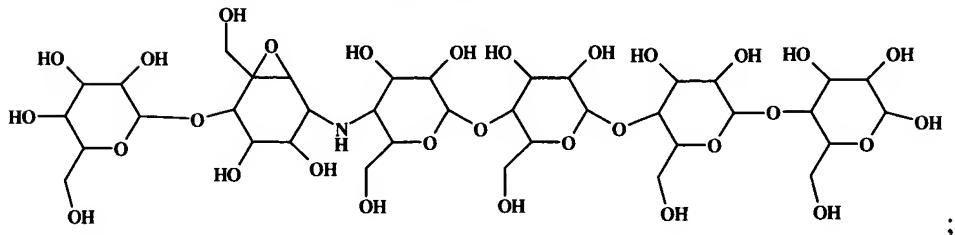
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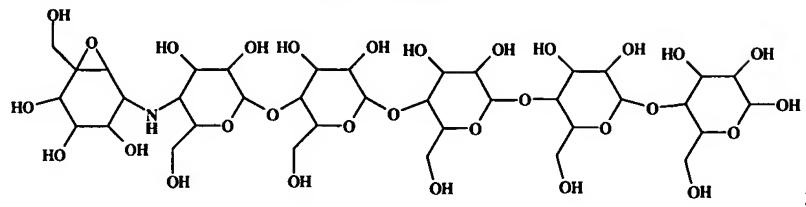
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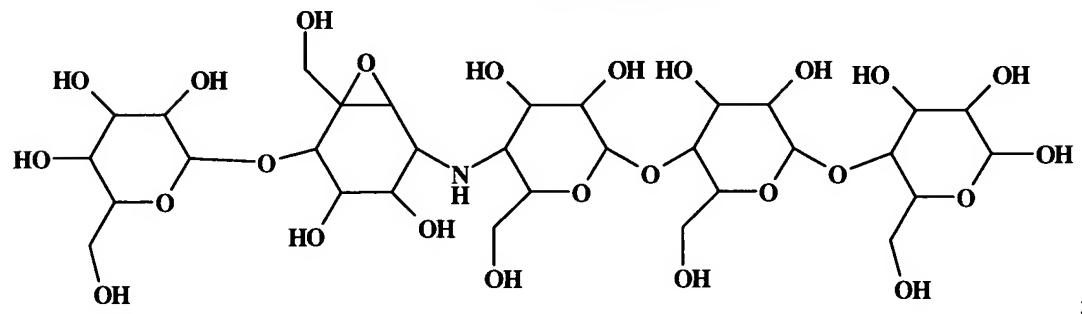
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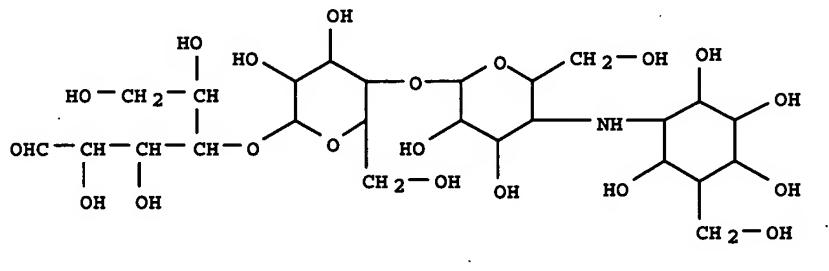
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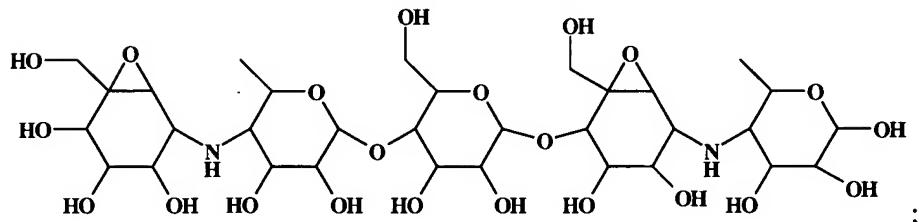
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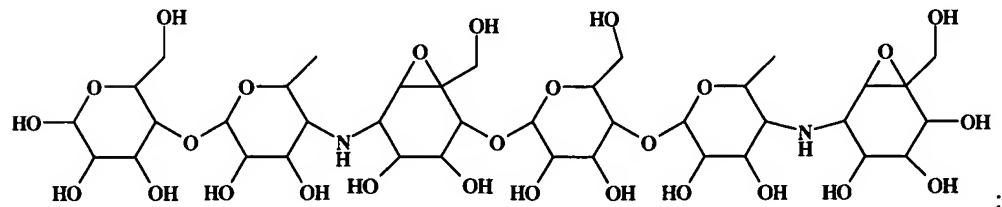
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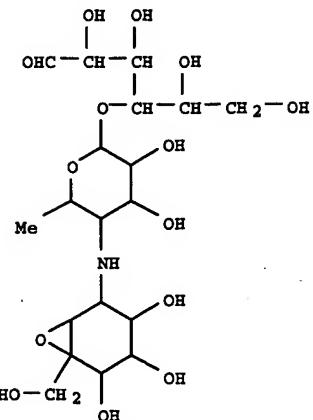
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Appl. No. 10/774,139

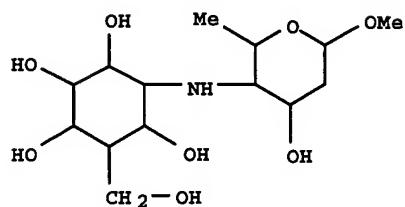
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Reply to Office action of January 27, 2005

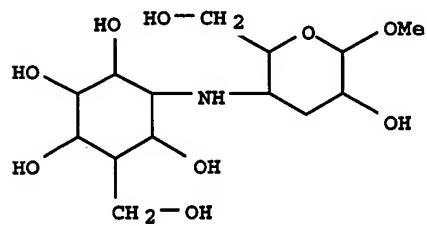
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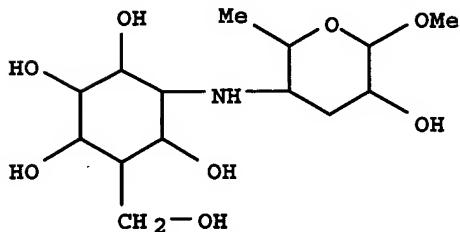
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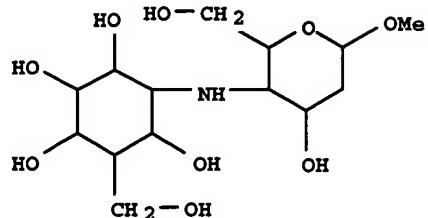
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Appl. No. 10/774,139

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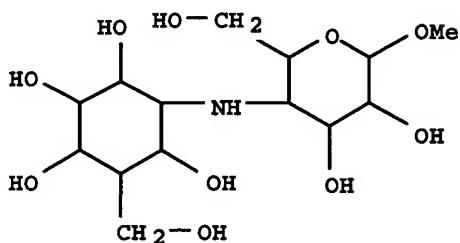
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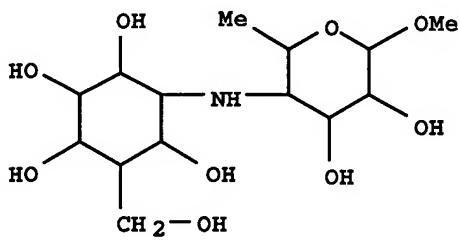
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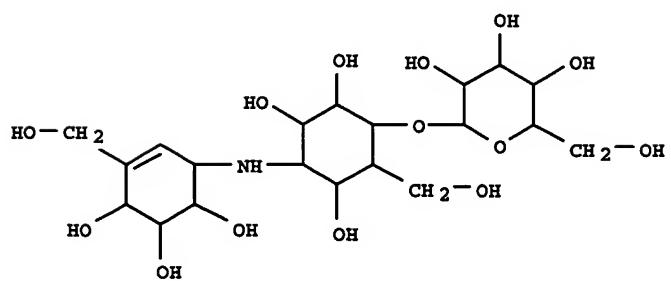
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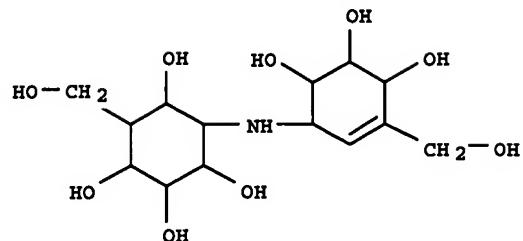
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Appl. No. 10/774,139

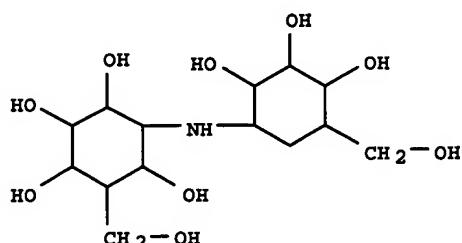
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Reply to Office action of January 27, 2005

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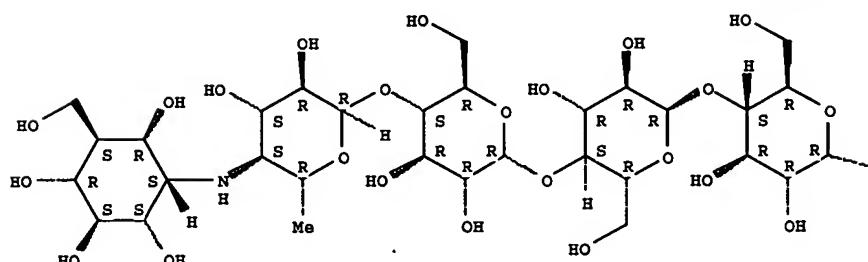


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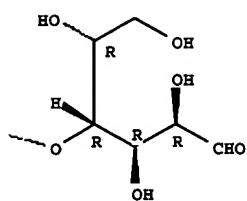


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PAGE 1-A



PAGE 1-B



FORM AMEND
Rev. 5/27/03

PATENT/Docket No. PC10922C

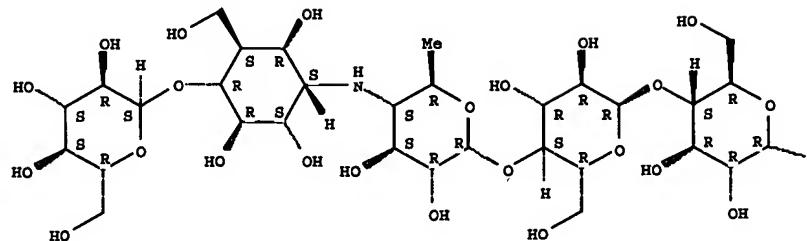
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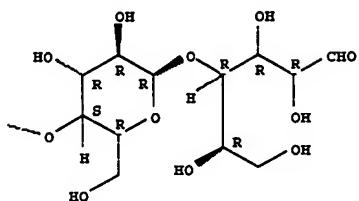
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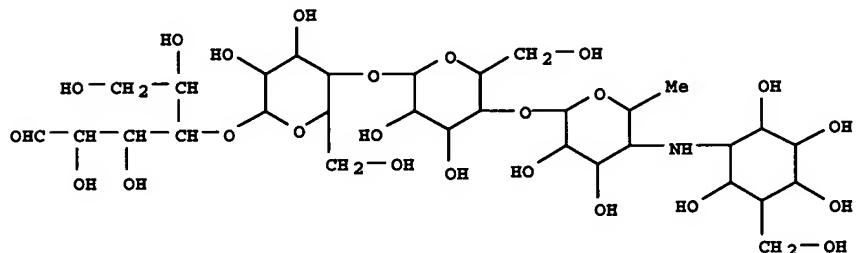
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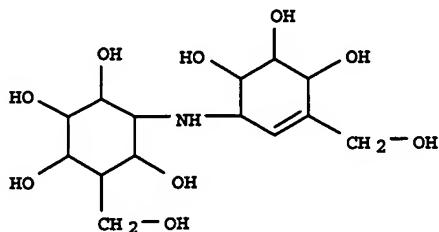
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RN-78025-06-6



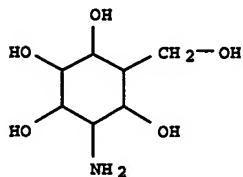
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FORM AMEND
Rev. 5/27/03

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31. (New) The method according to Claims 9, 15, 20, 21, 26 and 30, wherein the α -amylase and/or α -glucosidase inhibitor is administered in combination with one or more agents useful in the treatment of rumen acidosis and related conditions.

32. (New) The method according to Claim 31, wherein the agent is selected from buffers, antibiotics, antiparasitics, antihistamines, antifungals, antibacterials, antiinflammatories, dietary supplements and emollients.

33. (New) The method according to Claim 32, wherein the related condition is laminitis, chronic laminitis, intermittent diarrhea, poor appetite and cyclic feed intake, a high herd cull rate for poorly defined health problems, poor body condition, abscesses without obvious causes, sole ulceration, white line lesions, sole hemorrhages, misshapen hooves, lameness, liver abscesses, depressed immune function, respiratory diseases, reduced fertility rates, ruminal stasis or impaired nutrient absorption.

34. (New) The method according to Claim 32 wherein the related condition is reduced weight gain in cattle, reduced feed conversion efficiency in cattle or decreased milk yield and reduced milk quality in cattle.